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# Small Illinois Banks and the Federal Funds Market

J. W. Abraham

In recent years, funds have left many small Illinois communities for large metropolitan areas such as Chicago and New York. To obtain higher interest rates many depositors have withdrawn deposits from their local banks and saving institutions and placed these funds into various assets outside their community such as the widely popular money market funds. In turn, these money market funds have lent these funds to various institutions such as large corporations and banks, many of which are located in Chicago and New York.

Concerned with this deposit shift, legislators have allowed banks to offer various higher yielding deposits, thus hoping to curb this exodus and in fact bring back some of these deposits. Not surprisingly, early estimates show that this indeed has brought back some deposits to these banks. Even so, the outflow of funds from small Illinois communities has not been curbed.

Also motivated by high interest rates, many small Illinois banks have increased their lending outside of the community. One market that many of these banks have found attractive is the federal funds market. Through the federal market, small banks have abetted the flow of funds to Chicago and New York either directly, by lending to large Chicago banks, or indirectly, by lending to regional banks who, in turn, lend to the large banks.

This article examines the activity of small Illinois banks in the federal funds market. The first section reviews the market, describing how small banks participate. The second section describes trends in small bank activity in the federal funds market over the past decade. Next, I examine small bank use of the market. The fourth section deals with a common argument voiced extensively in the controversy over Illinois bank structure. The final section summarizes the major points.

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## Federal Funds and the Mechanics of Trading

### *Federal Funds: What are they?*

As indicated, the federal funds market is primarily a market within which commercial banks make loans to one another. However, in recent years a growing number of nonbank institutions have also participated. These nonbank institutions include savings and loans, mutual savings banks, government agencies, and even some large nonfinancial corporations.

Frequently, the federal funds market is referred to as a market for overnight loans. This is because most federal fund loans are made one day and then repaid with interest the very next day. Still, it is not unusual for federal fund loans to be made for longer than one day. In some instances, federal fund loans are made for original maturities ranging from several days to several weeks, depending upon the specific needs of the borrower and lender. These types of loans are known as term federal funds. The most common way of lending funds for longer than one day is via the continuing contract agreement, under which agreement the borrower and lender agree to let the original one-day loan roll over each day until one notifies the other that they wish to terminate the agreement. Lending in this manner, participants retain the flexibility of a one-day loan and at the same time achieve a longer maturity similar to a term federal fund loan.

Generally, for federal fund loans — whether for one day or for longer maturities — borrowers do not put up collateral to obtain the loan. Yet, there are cases in which banks, either due to their own desire for safety or because of state banking laws, do require collateral such as government securities. This use of collateral may be because, unlike most individual bank deposits, federal funds are not covered by any type of federal deposit insurance. In any event, such secured federal fund loans are uncommon.

### *Mechanics of federal fund trading*

There are several small ways banks can participate in the federal funds market. Suppose Small

National Bank (SNB) wishes to lend $100,000 overnight to another bank via the federal funds market. SNB's first task is to locate a borrower. This could be done in a couple of different ways, both of which require SNB to contact other banks directly over the telephone. It is important to note that, as with most of the money markets, there is no physical marketplace where federal funds are traded. Instead, all transactions are arranged via an informal telephone network.

In this example, SNB could find a borrower by calling several other banks, checking to see whether any of these banks need funds, and, if so, what rate of interest they would be willing to pay. These banks may be local or in a different area. Once SNB has found an appropriate borrower, it would then make a verbal agreement over the phone to lend the $100,000 overnight at some agreed-upon rate.

For many small banks, however, this is a relatively cumbersome and costly method to locate a borrower. While large banks often trade in amounts of several million dollars, small banks usually trade in much smaller amounts. Consequently, it is not beneficial for small banks to search for the highest possible rate. Furthermore, small banks trade federal funds much less frequently than do large banks. While many small banks trade funds every day, large banks are active in the federal funds market almost continuously throughout each day. As a result, large banks have departments devoted solely to federal fund trading. Small banks do not. Their federal fund trading may be performed by an officer in the operations department, the comptroller, the vice-president, or even the president of the bank. These people have other jobs as well. Generally, they have neither the time nor the expertise to benefit greatly from calling several banks in search of a borrower.

For these reasons SNB would be likely to call a federal funds dealer. Many large banks, and some medium-sized banks, act as dealers to small banks. These dealers stand ready to borrow and lend all the funds small banks wish to trade. Most of the time, however, these dealers are borrowers. If these dealers borrow more than they need for their own use, they will, in turn, lend to another bank. These other banks are often very large banks.

Often these dealers also serve as correspondent banks for small banks. Nearly all small banks maintain an informal relationship with one or more larger banks, and the parties refer to one another as correspondent banks. Small banks maintain deposits at their correspondent banks in exchange for various services — such as check clearing, computer services, international advice, and loan participations. Similarly, the buying and selling of federal funds is a service many correspondent banks feel they must provide to small banks in order to retain their business.

To continue our example, once SNB has found a borrower — whether a dealer or some other bank; SNB's next task is to transfer the $100,000 to the borrower. One way SNB could do this is via the transfer of deposits SNB holds at its Federal Reserve Bank (hence the name of federal funds).

The Federal Reserve System, the central bank of the United States, was created by Congress to perform a variety of functions. These functions include the regulation of commercial banks and the maintenance of the payments mechanism. Its primary purpose, however, is to conduct monetary policy. This entails efforts to influence the money supply, credit, and interest rates in pursuit of such economic goals as stable prices, full employment, and economic growth.

For monetary policy purposes, the Federal Reserve requires commercial banks to hold a certain percentage of their deposit liabilities in some combination of vault cash and deposits in the Federal Reserve. These two assets are commonly referred to as reserves.

Even without such requirements, however, banks would hold some of their assets as reserves. Banks need to keep cash (coin and currency) on hand in order to accommodate the daily cash needs of their customers. Yet, in addition, most banks would also maintain deposits at the Federal Reserve. One of the most important reasons for maintaining such deposits is to facilitate the clearing of checks. For example, suppose a customer of Bank A writes a check to a customer of Bank B. Bank B's customer will deposit this check in Bank B and receive credit for this amount in his account. Bank B will then present the check to the Federal Reserve who in turn will credit Bank B's account and debit Bank A's account at the Federal Reserve. Bank A will then reduce the deposit balance of the customer who wrote the check.

To return to our example, in much the same way as Bank A transferred funds to Bank B, SNB could also transfer the $100,000 in the federal funds market. SNB would instruct the Federal Reserve via a wire system to transfer $100,000 from SNB's account to the borrowing bank's account. SNB would record this on it's balance sheet as a decrease in deposits in the Federal Reserve and an increase in federal funds sold (loaned). The borrowing bank would show an increase in deposits in the Federal Reserve and an increase in federal funds purchased (borrowed).

Since this is only a one-day loan, the transfer of deposits and the balance sheet accounts will be reversed the next day. Typically, the borrower would

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instruct the Federal Reserve to transfer the $100,000 plus the interest on the loan back to SNB's account. In some cases, however, the borrower would issue a separate check to pay the interest.

While the transfer of deposits at the Federal Reserve is a common way of making funds available to the borrower, many small banks transfer funds in another way. Since many small banks sell federal funds to dealers who are also correspondent banks, the small bank could transfer funds in one of two ways: either the funds could be transferred via the Federal Reserve as described above, or the funds could be made available to the correspondent bank simply by reclassifying the deposits the small bank already maintains at the correspondent bank.

In the latter case, the correspondent bank would transfer $100,000 from SNB's correspondent account, normally a demand deposit account, to an account labeled federal funds purchased. At first, one may wonder how this transfer from one type of liability to another results in an increase in funds to the correspondent bank. The answer rests on the fact that, unlike the case of demand deposits, there are no reserve requirements against funds obtained from the federal funds market. Thus, by transferring funds from demand deposits to federal funds purchased, the borrower has an increase in funds available for loans and investments. Prior to this, these same funds had to be held as reserves to meet reserve requirements.

Again, if it is assumed that this is a one-day loan, then the next day this transaction will be reversed. The correspondent bank will transfer the $100,000 plus interest back to SNB's demand deposit account.

## Small Bank Activity in the Federal Funds Market

*Data*

This article makes use of semiannual balance sheet data for small (less than $50 million in assets) Illinois banks from the end of 1972 to mid-year 1982. Such balance sheet data, however, does not report federal fund transactions separately. Instead, federal fund transactions are lumped together with repurchase agreements. Repurchase agreements, similar to federal funds, are short-term transactions in which the borrower actually sells government securities and, at the same time, agrees to buy back these securities at a later date.

## Trends of Small Illinois Bank Participations

Over the last 10 years, the number of small Illinois banks participating in the federal funds market has increased significantly. At the end of 1972, 663 banks, or 67 percent, of all small banks participated in the federal funds market. In contrast, at mid-year 1982, 853 banks, or 97 percent, were either borrowers or lenders of federal funds.

Of these banks that have participated in the federal funds market, the vast majority have been net sellers. From 1972 to mid-1982 the proportion of net sellers has never been below 69 percent and at times has been 90 percent or higher (Chart 1). Moreover, many of these banks have been substantial net sellers of federal funds (see table). For example, of the 697 net sellers in mid-1982, 379 banks sold federal funds amounting to over 10 percent of their total assets.

Chart 1

Table 1

Distribution of Net Sellers as a Percentage of Assets

| Year | <5% | 5-10% | >10% |
|---|---|---|---|
| 1982:6 | 318 | 205 | 174 |
| 1981:12 | 326 | 238 | 159 |
| 1981:6 | 343 | 201 | 154 |
| 1980:12 | 347 | 225 | 180 |
| 1980:6 | 343 | 264 | 191 |
| 1979:12 | 367 | 241 | 131 |
| 1979:6 | 389 | 200 | 76 |
| 1978:12 | 359 | 117 | 65 |
| 1978:6 | 379 | 172 | 85 |
| 1977:12 | 358 | 208 | 102 |
| 1977:6 | 375 | 154 | 82 |
| 1976:12 | 314 | 202 | 124 |
| 1976:6 | 381 | 204 | 93 |
| 1975:12 | 302 | 238 | 120 |
| 1975:6 | 330 | 269 | 159 |
| 1974:12 | 306 | 230 | 179 |
| 1974:6 | 320 | 219 | 216 |
| 1973:12 | 291 | 218 | 236 |
| 1973:6 | 287 | 236 | 234 |
| 1972:12 | 250 | 208 | 183 |

To be sure, small Illinois banks in aggregate have been consistently net sellers throughout the last 10 years, however, the magnitude of federal funds sold has varied considerably (Chart 2). From year end 1973 to year end 1978, the amount of federal funds sold declined steadily from about 5 percent of total assets to just over 1 percent. In contrast, in 1979 and the first half of 1980 the amount of federal funds sold rebounded sharply. So by mid-1980 the amount of federal funds sold again amounted to over 5 percent of total assets resulting in over $900 million invested in federal funds by small Illinois banks.

Chart 2

## Small Bank's Use of Federal Funds

It is often said that a major reason banks buy and sell federal funds is to offset short-term fluctuations in their reserve positions. A bank's reserve position changes whenever there is a change in its assets or liabilities. For example, any increase in an asset such as loans results in a corresponding decline in reserves. On the other side of the balance sheet, any increase in liabilities such as a customer's checking account results in a corresponding increase in reserves.

To be sure, many of these changes in assets and liabilities are known in advance by banks. Still, day-to-day there is significant uncertainty. After all, there is no way a bank can know for certain how many people will come in for a loan on a particular day or how many people will make deposits in their checking accounts. Such unexpected changes in loans and deposits present a problem to banks, since they may leave banks with a reserve position that is less than their desired level and on other days a position that is greater than desired. To be sure, banks do not want to be too deficient in their reserves, since it may prevent them from meeting their reserve requirements. If this occurred, the bank would have to pay a penalty imposed by the Federal Reserve. Yet, at the same time, banks do not wish to have excessive reserves on hand. Reserves do not earn interest, and banks forego income by holding such funds.

Federal funds provide a useful tool which can help banks accomodate changes in their need for reserves. For instance, if at some time during the day a bank realized it was going to be deficient in reserves, that it can borrow additional reserves quickly in the federal funds market. Alternatively, if it finds itself with too much reserves, it can sell federal funds to another bank, allowing it to earn interest on the excess reserves.

While activities relating to short-run reserve adjustments are probably of major importance in explaining the use of federal funds by many banks, such activities do not appear to be of great importance to small banks. This is not to say that no small banks use federal funds for this reason or that some portion of their federal fund trading is not for reserve adjustments. Rather, the data suggest that this is not the dominant way in which most small banks use federal funds.

If, in fact, reserve adjustments were the major factor behind small bank trading in federal funds, it would seem that small banks would sometimes be net sellers of federal funds, and at other times be net purchasers. This, however, is not the case with small Illinois banks, since as we saw in the last section, small Illinois banks in aggregate have been consistently net sellers of federal funds, and many sold substantial amounts.

Instead, I argue that the major way small banks view federal funds is as an investment much like any other security or loan. According to this view, the major factor determining small bank investment in federal funds is the relative interest rate. As the federal funds rate rises relative to rates on other securities or loans, small banks will increase their holdings of federal funds relative to other assets. Similarly, as the federal funds rate falls relative to other rates, small banks reduce their federal funds sold.

Three type of loans — consumer loans, agricultural loans, and business loans — were compared to the changes in the federal funds position of small banks. The comparison between each of these loan categories and the federal funds position supports the view that small Illinois banks use federal funds much like any other security or loan. As the federal fund rate rises relative to the rates on loans, small banks increase their holdings of federal funds. They either decrease their holdings, or reduce rates of investment in these other assets. For example, compare federal funds with consumer loans (Charts 3 and 4). From 1974 to the end of 1978, small banks increased their holdings of federal funds. During this period, interest rates on consumer loans were significantly greater than rates on federal funds. Beginning in 1979, however, the federal fund rate rose significantly. By 1980, the federal fund rate reached, and fluctuated around, interest rates on consumer loans. As a result, the proportion of funds placed in federal funds rose markedly.

## Small Banks Use of Federal Funds and the Bank-Structure Controversy

For years, the structure of the banking system in Illinois has been a subject of controversy. The main issue has been whether Illinois banks should be subject to geographical restrictions or not. For much of the past, Illinois banks have been virtually blocked from expanding into geographic markets other than the one in which the main bank is located. In recent years, however, banks have been given wider latitude.

Unlike many states, Illinois does not permit banks to establish full service branches, allowing instead

Chart 3

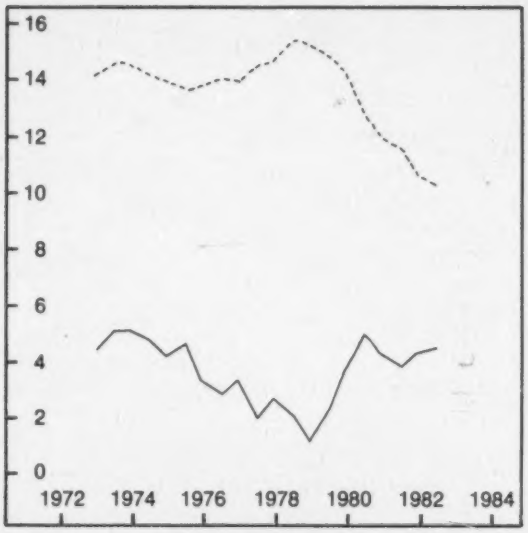


Chart 4

establishment of a limited number of what are commonly termed facilties, not full-service institutions. Moreover, these facilities are severely restricted as to how far they can be located from the main bank. In contrast, some states allow banks to establish full service branches within a limited area such as a city or county in which the main bank is located. Other states, California and New York, for example, allow banks to establish full service branches statewide.

Illinois banks have recently been given a route in which to circumvent, at least partially, this branching restriction. Beginning in 1982, Illinois banks were permitted to form multibank holding companies. Multibank holding companies are separate companies that can own two or more banks. Via the holding companies, Illinois banks can now purchase several banks and operate them as if they were branch banks.

Multibank holding companies can only purchase banks within a specified geographic area. The Illinois multibank holding company law specifies regions in which holding companies can purchase other banks. The state is divided into five regions, and banks are allowed to purchase other banks only in their own region and in one adjacent region.

Nevertheless, the fact that Illinois allows multibank holding companies is a welcome sign to opponets of geographical barriers. It has been argued that geographic restrictions are not in the best interest of the public. It has been argued that geographic barriers inhibit the efficiency of the financial system and have resulted in the protection of inefficient banking organizations.

Proponents of geographic restrictions, on the other hand, maintain that there would be substantial costs as a result of unlimited expansion by banks. One frequently mentioned cost relates to the inequitable distribution of funds. It is claimed that if all branching restrictions were removed, the large Chicago banks would soon set up branches in many downstate communities. Via these branches, they would attract deposits that would otherwise go into local banks and savings institutions. Furthermore, it is feared that many of these deposits would be transferred to Chicago and loaned to large business firms, foreign countries, and other institutions. As a consequence, there would be a reduction in funds available to consumers, small business, and farmers in smaller communities.

The evidence presented in the previous sections, however, contradicts this argument. The majority of small banks are net sellers of federal funds, and many are substantial net sellers. Moreover, whether directly or indirectly, many of these funds end up in the hands of the large money-center banks. In fact, many small banks sell federal funds directly to large banks. Others, however, sell federal funds to medium-sized banks who act as dealers. If these dealers purchase more funds than they need for their own use, they, in turn, sell funds to money-center banks. In short, small Illinois banks are already transferring a significant amount of funds to large Chicago banks.

Equally important, is the fact that much of the funds sold by small banks do not relate to short-term reserve adjustments. Rather, they appear to result from an explicit decision based on the profitability of federal funds relative to other investment opportunities. Moreover, the flow of funds from small banks to large banks would not occur unless large banks could use these funds in a more profitable manner than can small banks. This is the way a market system works.

In the event of relaxed geographical barriers, large banks would move into smaller communities for the purpose of extracting deposits, only if they could do so more efficiently than through their federal funds market. For, as indicated, large banks are already obtaining these funds via the federal funds market. Thus, if large banks were to move into smaller communities, it would seem that the bulk of com-

(continued on p. 10)

# REAL ESTATE DEVELOPMENTS
# Restructuring City Taxes: The Effects on Business and Household Tax Burdens

**Kalman Goldberg and Robert C. Scott**

Financially troubled cities have been altering their tax structures by reducing reliance upon property taxes and substituting sales taxes for the needed revenue. In medium size cities (population between 100,000 and 199,999) the ratio of property to sales tax receipts dropped from 8.01 in 1974 to 2.58 in 1982. For the largest cities in the nation (population over 1 million) the ratio for the same years dropped from 4.35 to 1.58. Some of the change undoubtedly reflects a deterioration of the property tax base in central cities. However, there has been a deliberate policy effort to switch to the general and selective sales tax as a more important source of local government revenue. Before undertaking a tax change, city policymakers must be prepared to respond to questions about efficiency and equity. How will the tax change alter economic behavior (efficiency)? How does the change in the distribution of the tax burden affect fairness of the city's tax structure (equity)? The objectives of the restructuring are to induce businesses to remain within the city, to entice new firms, and to shift a larger portion of the tax burden to suburban free-riders. This policy assumes that the adverse effects on residential and business location and shopping are greater from property taxes than from sales taxes. It also assumes that the sales tax burden falls more heavily on noncity residents than does the property tax. Therefore, there are benefits for efficiency as well as gains in equity to be realized by city dwellers as a whole from tax restructuring.

However, property and sales taxes affect differently city residents with different income, property, and consumption expenditures levels. Using the ability-to-pay standard of equity, policymakers must examine the effects of a tax restructuring program on the redistribution of the burden among its residents.

The City of Peoria, Illinois (a home rule city) enacted a 1-percent sales tax increase effective in 1984. To ease the burden on low-income families, it exempted food and drugs; to avoid relocation of firms selling big-ticket items, such as automobiles, it exempted purchases on sales of more than $500. The proceeds from the tax will be rebated to property owners. The objective of the tax restructuring, therefore, is not to increase revenue but to shift more of the tax burden from property to sales and, thereby, from residents to nonresidents.

We undertook to estimate the division of the city's tax burden before and after this change among (1) city residents and nonresidents; (2) city residents in different income classes; and (3) city businesses of different types. The resulting computer simulation program permits any city to enter data specific to it and to estimate the consequences of possible tax changes for them. The program also allows for the inclusion of a city income tax. This article reviews the basic features of the program as it was applied to the city of Peoria. The distribution of the existing (1981) tax burden is estimated, and then the incidence effects of tax restructuring is simulated. The study did not undertake to estimate the effects on location decisions.

## Tax Incidence before Restructuring

The taxpayer chosen for study is the average household in each of 33 census tracts in the city of Peoria. This permits an examination of the effects of taxes on typical households over a wide range of income levels, geographically dispersed within the city.

The average property tax was computed for the average household in each census tract from Peoria County records. The average income figures are those reported by the Bureau of the Census. The sales tax for each average census tract household is based on its consumption expenditures and these were derived from survey results conducted by the Bradley University Institute for Urban Affairs and Business Research.

The real burden of a tax is not necessarily the amount that a household appears to pay. Property and sales taxes can be shifted. Households deduct property and sales taxes on their federal income tax returns, and this saves them tax money at the expense of the federal government. Businesses do the same. In addition, businesses shift all or part of their property taxes to their customers in their prices. Similarly, enterprises subject to the sales tax levy pass this on to their customers. In order to measure the effects of Peoria taxes on households, it is necessary to determine how much they really pay in contrast to how much they are billed in taxes. Therefore, the study traces the shifting patterns: the amount the average household in each census tract avoids and the amount businesses in Peoria pass on to households when they make purchases. Once the actual tax payments, property and sales, are measured, the true burden — what percentage of a household's income is taken — can be determined.

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## Property Tax

The property taxes levied on business enterprises are shifted to others except for a small portion. Taxes are deducted from state and federal tax declarations as a business expense, and the remainder is included in selling prices and thus paid by buyers of their products. Based on surveys, information provided by business firms, and shifting assumptions, we estimated that commercial enterprises shift about 78 percent of the property tax levied on them, the business owners bearing the remaining 22 percent. Industrial enterprises shift about 83 percent with owners bearing about 17 percent. Railroad and utility companies shift a full 100 percent since, as regulated monopolies, there are no competitors to limit their ability to pass on tax costs in the prices they charge.

Not all the tax passed on through higher prices falls as a burden on city households. Approximately 42 percent of commercial business sales are exports to nonresidents of Peoria; about 71 percent of utility sales either directly or indirectly are made to nonresidents; and virtually all sales of railroads and industry are exports. Consequently, after accounting for all shifting, the true burden on Peoria businesses resulting from the property tax is considerably less than the tax levied on them would seem to indicate (see Table 1).The actual property tax a household pays depends on how much it can avoid through shifting by federal income tax deductions and how much its consumption of Peoria-produced products results in taxes being shifted to it. Table 2 shows the impact of property taxes on three typical families in

Table 1

Effect of Property Tax Shifting on Incidence of City Business and Industry in Peoria, Illinois in 1981

| | Commercial | Industrial | R.R.s | Utilities |
|---|---|---|---|---|
| Taxes levied | $4,950,634 | $1,340,386 | $13,123 | $303,440 |
| less: federal income tax deduction | 1,485,190 (30.0%) | 616,577 (46.0%) | 6,037 (46.0%) | 139,582 (46.0%) |
| less: state income tax deduction | 198,025 (4.0%) | 53,615 (4.0%) | 525 (4.0%) | 12,138 (4.0%) |
| less: shifted through export sales | 908,506 (18.3%) | 449,029 (33.5%) | 6,561 (50.0%) | 106,963* (35.3%) |
| less: shifted through sales to city residents | 1,280,665 (25.9%) | 0 (0.0%) | 0 (0.0%) | 44,757 (14.7%) |
| Equals: tax incidence | 1,078,248 | 221,164 | 0 | 0 |
| Percentage of tax bill paid out of after tax income | 21.8% | 16.5% | 0.0% | 0.0% |

*Includes $44,151 (29.1 percent of total after shifting to federal and state governments) shifted through sales to city businesses which in turn were mostly shifted in export sales.

Table 2

Effect of Property Tax Shifting on Incidence of Typical City Households in Peoria, Illinois in 1981

| | Average Households | | |
|---|---|---|---|
| | Census Tract 2 Income = $13,984 | Census Tract 20 Income = $23,928 | Census Tract 29 Income = $36,773 |
| 1. Tax bill on residence | $155.19 | $342.99 | $477.22 |
| 2. less: federal income tax deduction | 4.54 | 40.72 | 129.92 |
| 3. plus: business property tax paid through purchase prices | 25.26 | 30.62 | 37.52 |
| 4. equals: actual property taxes paid | $175.91 | $332.89 | $384.82 |
| 5. Net difference between levy and incidence | +$20.72 | -$10.11 | -$92.39 |
| 6. Incidence: tax - income | | | |
| before shifting (1 - income) | 1.11% | 1.43% | 1.30% |
| after shifting (4 - income) | 1.26% | 1.39% | 1.05% |
| 7. Percentage of tax bill actually paid | 113.4% | 97.1% | 80.6% |

Regression Results, All Census Tracts

| | Elasticity* | $R^2$ |
|---|---|---|
| Tax levied: | 1.0705 | .7259 |
| Actual tax paid: | .8083 | .6733 |

*An elasticity greater than 1.0 indicates a progressive tax, an elasticity less than 1.0 indicates a regressive tax.

the city (low income, middle income, and high income) through the tax bill levied, the amount each shifts through federal income tax deductions, the amount shifted by business to them through their purchases, and the actual net amount each pays as a result of this shifting. Note that the lowest income household ends up paying more ($20.72) in property taxes than the tax bill it received would indicate. In contrast, the middle and higher income households gain from shifting ($10.11 and $92.39). The low income household pays 13.4 percent more than it was billed while the highest income household pays almost 20 percent less. These differences are traceable to the fact that higher income groups can shift more of their tax to the federal government since they are in progressively higher marginal tax brackets and they itemize more often and that commercial and utility property taxes that are shifted take a smaller proportion of income from higher income households. Higher income groups spend a smaller portion of their income on consumption. Therefore, although they spend more money on goods and pay more of the shifted taxes, this comprises a smaller percentage of their income.

The relationship between taxes and income for the city as a whole is demonstrated in the regression results in Table 2. The property tax on household residential property is roughly proportional before any shifting takes place. Although varying somewhat among census tract households, a 1-percent increase in household income results over all in a 1-percent (1.0705 percent) increase in the property tax bill. However, the true incidence of the property tax, the relationship between the tax actually paid after shifting and income is significantly more regressive. A 1-percent increase in income results in an increase in tax actually borne of only eight-tenths of 1 percent (.8083).

Because of shifting, the true source of each dollar of tax receipts of the city is much different from what the allocation of the levy indicates. In 1980, the city levied about 32 percent of its property tax on business enterprises and 68 percent on residential property. However, as Table 3 shows, businesses actually paid only about 6½ cents of each tax dollar the city received; households accounted for 65 cents; and a significant portion, about 29 cents, was paid by federal and state governments and nonresidents.

Table 3

Origin of City Property Taxes, Before and After Shifting in Peoria, Illinois in 1981

| | | |
|---|---|---|
| *Taxes Levied* | | |
| City households | | 67.6% |
| City businesses | | 32.4% |
| *After Shifting* | | |
| Paid by city households | | 64.8% |
| -through purchases from city business | 6.5% | |
| -on residences, after shifting | 58.3% | |
| Paid by city business and industry after shifting | | 6.4% |
| Paid by nonresidents through purchases from city business and industry | | 7.2% |
| Paid by federal government | | 20.3% |
| -household tax deductions | 9.3% | |
| -business and industry tax deductions | 11.0% | |
| Paid by State Government through business and industry tax deductions | | 1.3% |

## Sales Tax

This study assumes that the 1-percent city sales tax, levied on business enterprises, is shifted entirely to consumers. Peoria residents pay the sales tax in proportion to their purchases. However, they deduct it on their federal income tax return, thereby shifting a portion of it. Nonresidents purchase goods from Peoria merchants and, as a consequence, contribute to city sales tax revenue. Of each sales tax dollar received by the city after shifting, city households actually pay about 40 cents; the federal government pays about 5 cents through revenue lost by deductions, and nonresidents pay about 55 cents.

The impact of the sales tax on Peoria households is uneven, and its incidence is highly regressive. Table 4 shows the effects of the sales tax on the three representative households. The tax paid as a proportion of income declines as income increases. This regressive result is true before shifting and becomes even more pronounced after shifting. Lower income households spend a larger portion of their income on taxable consumer goods and, as a consequence, a greater proportion of their income goes to the sales tax. Also, because their income is low, they are less able to shift the tax as a deduction, even if they do itemize on their federal tax return. Estimates were made of the impact of the sales tax when food and drugs are exempt and when major durables are exempt. The tax is still highly regressive but less so when the tax is removed from food and drugs.

The incidence of the sales tax illustrated by the three census tracts is shown in the regression results for the city as a whole. Before shifting (through federal income tax deductions), if a household's income is 1 percent higher, its sales tax is less than 0.4 percent higher. After the deduction, the regressivity is even more marked: a 1-percent higher income leads to less than 0.2-percent increase in sales tax payments. Exempting food and drugs reduces the regressivity; exempting major durable purchases increases it.

## Effects of Tax Structure Changes

What would be the effect of lowering property taxes and raising sales taxes just enough to recoup the lost revenue? A 10-percent property-tax reduction in Peoria would require a 21-percent increase in the sales tax (from 1 percent to 1.21 percent) on all items. (Slightly larger sales tax increases are required to yield the same total revenue if food and drugs or major durables are exempted.) Table 5 shows the effects on three representative households: the combined property and sales tax becomes more regressive, and most households in the city are better off, that is, they end up paying less in total taxes.

Total tax payments as a proportion of income declines with higher income groups; the proportion paid in taxes declines even more steeply after the tax

Table 4

City Sales Tax Incidence on Households After Shifting: All Items; Food and Drugs Exempt; Major Durables Exempt, Peoria, Illinois in 1981

| | Average Households | | |
|---|---|---|---|
| | Census Tract 2 Income = $13,984 | Census Tract 20 Income = $23,928 | Census Tract 29 Income = $36,773 |
| 1. Sales tax on city purchases (total consumption less imports), all items (1.0% tax rate) | $84.62 | $102.41 | $125.43 |
| 2. Incidence | 0.61% | 0.43% | 0.34% |
| 3. less: Federal income tax deduction | 2.48 | 12.16 | 34.15 |
| 4. equals: actual sales tax paid to city | $82.14 | $90.25 | $91.28 |
| 5. Incidence, all items | 0.59% | 0.38% | 0.25% |
| 6. Incidence, less food and drugs | 0.43% | 0.28% | 0.19% |
| 7. Incidence, less major durables | 0.52% | 0.33% | 0.21% |

Regression Results, All Census Tracts

| | Elasticity | $R^2$ |
|---|---|---|
| Sales tax all items, no federal tax deduction | .3737 | .97 |
| Sales tax after deduction: | | |
| all items | .1710 | .97 |
| food and drugs exempt | .1932 | .98 |
| major durables exempt | .1424 | .95 |

structure change. The regression results for the city as a whole also show this — a 1-percent increase in income after the tax change results in a 0.6097-percent increase in taxes paid instead of a 0.6467-percent increase. Higher income households are clearly the greater beneficiaries. This is, of course, a consequence of the fact that sales taxes have become a larger component of the total taxes in the altered structure, and they are more regressive than the property tax. This is true, although less so, even if food and drugs are exempt.

However, almost all city households do receive some tax relief. (Not shown here is the fact that the very poorest households lose from the change. They pay relatively little in property taxes, and almost all their income is spent on consumption (sales taxable) goods. As a consequence, the sales tax increase is heavily weighted against them.) Table 5 shows the gain for each of the typical households. As expected, higher income groups benefit more absolutely and relatively. A larger portion of the sales tax is actually paid by nonresidents (through shifting) than of the property tax. Therefore, a tax structure more heavily weighted with the sales tax shifts more of the true burden through export sales.

Table 5

City Combined Property and Sales Tax (All Items) Incidence After Shifting, Peoria, Illinois in 1981/Effect of Tax Structure Change: Property Tax Reduction, 10 Percent Sales Tax Increase, 21 Percent Equals Constant Tax Revenue

| | Census Tract 2 | Census Tract 20 | Census Tract 29 |
|---|---|---|---|
| 1. Sales tax .01 | $82.14 | $90.25 | $91.28 |
| 2. Property tax .0283 | 175.91 | 332.89 | 384.82 |
| 3. Total taxes paid | $258.05 | $423.14 | $476.10 |
| 4. Incidence (% of income) | 1.85% | 1.77% | 1.29% |
| 5. Sales tax all items .0121 | $99.07 | $108.86 | $110.10 |
| 6. Property tax .0255 | 158.34 | 299.63 | 346.38 |
| 7. Total tax expense | $257.41 | $408.49 | $456.48 |
| 8. Incidence (% of income) | 1.84% | 1.71% | 1.24% |
| 9. Gain | $0.64 | $14.65 | $19.62 |
| 10. Incidence reduction | 0.01% | 0.06% | 0.04% |

Regression Results, All Census Tracts

| | Before Tax Change | After Tax Change |
|---|---|---|
| Elasticity | .6467 | .6097 |
| $R^2$ | .72 | .73 |

## Conclusions

The city of Peoria tax structure, typical of local governments, relies heavily on property and sales taxes and is highly regressive.

However, the total amount of income that is paid in property and sales taxes to the city is not enormous. It ranges from 2.5 percent of the income of the poorest households to only about 1.3 percent for the higher income households.

Only about 35 percent of the total property tax bill of city residents is levied by the city of Peoria, the rest representing the levies of the many other taxing units of which city dwellers are also a part. This suggests that tax relief is only partially within the control of the city.

Nevertheless, the incentive to substitute sales for property taxes is clear — it permits a city to export a larger share of its tax burden to nonresidents. The extent to which the central city is exploited by free-riders is significantly reduced. Added to this are the usual reasons. Sales taxes are psychologically easier to pay and are income elastic. The property tax, in contrast, places a greater burden on the declining city tax base, particularly on residences.

The extent of the gain to city dwellers from the tax restructuring depends on the assumptions about shifting, the industrial structure, and the basic/service ratio of its business base. For example, if smaller proportions of the property tax are shifted and if owners reside in the city, the case for switching to a sales tax becomes even more compelling. On the other hand, if the proportion of commercial export sales are smaller than those measured for Peoria the switch becomes less advantageous. In this city, about 29 percent of property tax revenues, but about 60 percent of sales tax revenues, are from noncity sources. In this study, generous shifting assumptions were made, reducing the city burden of property taxes and thereby understating the case for tax restructuring.

Changing the tax structure by reducing the property tax rate and substituting a higher sales tax to recoup the revenue has two significant results. First, the effect of the combined taxes becomes more regressive. Some relief is available to lower income households if food and drugs are exempt, but if adverse efficiency consequences are avoided by exempting major durables, regressivity is accentuated. The regressivity of the tax-structure change itself becomes even more pronounced because lower income households are less able to offset it. The higher income households live close to the borders and have automobile transportation, permitting them to escape the higher sales tax while enjoying the lower property tax. The opposite, of course, is true of the center city, poorer households. Second, the absolute burden on all but the lowest income households declines. Most residents, regardless of income level, pay less taxes because a larger proportion of the city's total tax is shifted to nonresidents. It is possible, therefore, to restructure taxes so that city residents would pay the same total (less property taxes and more sales taxes) while the city would realize a net gain, derived from the increase through the sales tax on nonresidents. The advantage of the total revenue gain to the city must be weighed against the further shift in burden of the city tax share to the poor. And one would have to be confident that the revenue gain would be sufficient and that the long-run efficiency effect would not be detrimental.

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(continued from p. 5)

munity deposits would be invested locally. Only if there were more profitable opportunities outside these local communities would funds be allocated elsewhere. And, this is how the system works at present.

## Conclusion

The federal funds market has been an attractive market for many small Illinois banks in recent years. Ten years ago, a fair number of banks did not even participate in the federal funds market. Today, nearly all small banks participate in one way or another. By a wide margin, most banks have been net sellers of federal funds and many have sold substantial amounts.

Due to the short maturity of federal funds, they constitute a perfect tool for banks to make short-term reserve adjustments. However, small banks use the federal funds much like any other security or loan, with relative interest rates being a major factor behind small bank adjustments. As the federal funds rate rises relative to these other securities and loans, these small banks will increase their holdings of federal funds relative to these other investments.

This view coupled with the fact that small banks are generally net sellers of federal funds certainly weakens an often-used argument against the elimination of geographical barriers against the expansion of Illinois banks. This argument maintains that the elimination of such barriers will entice large Chicago banks to move into many downstate communities in order to funnel deposits from these communities to Chicago. Such a transfer, however, has already been occurring through the federal funds market. In search of higher interest rates, many small community banks have effectively channeled funds to Chicago by lending to other banks.

Finally, it should be noted that the recent return of deposits to many small community banks as a result of the higher rates now paid by these banks does not necessarily translate into a substantial increase in loans to consumers, business, and farmers in these communities. For, if it is more profitable for these banks to lend in the federal funds market, experience tells us that many of these small banks will do so.

Table

Selected State Tax Facts
Fiscal Year 1982

| Rank | State & Local Taxes Per Capita | | Percent of Income after State & Local Taxes | | State Ind. Income Tax Per Capita | | State & Local Prop. Tax Collections Per Capita | |
|---|---|---|---|---|---|---|---|---|
| | State | $ Amount | State | Percent | State | $ Amount | State | $ Amount |
| 1 | Alaska | $6997.50 | Missouri | 91.71 | Delaware | $481.60 | Alaska | $898.46 |
| 2 | Wyoming | 2546.39 | Arkansas | 91.40 | New York | 457.57 | Wyoming | 888.83 |
| 3 | D.C. | 1923.88 | Florida | 91.38 | Massachusetts | 405.10 | New Jersey | 591.14 |
| 4 | New York | 1789.92 | New Hampshire | 91.37 | Minnesota | 380.06 | Montana | 581.72 |
| 5 | Hawaii | 1431.28 | Tennessee | 91.33 | Oregon | 367.74 | New York | 574.07 |
| 6 | California | 1372.38 | Indiana | 91.26 | Wisconsin | 357.07 | New Hampshire | 572.15 |
| 7 | Massachusetts | 1353.00 | Alabama | 91.17 | Maryland | 321.23 | Connecticut | 564.90 |
| 8 | New Jersey | 1353.04 | Kansas | 90.90 | California | 315.52 | D.C. | 531.56 |
| 9 | Connecticut | 1324.01 | Ohio | 90.89 | Hawaii | 293.26 | Michigan | 522.90 |
| 10 | Minnesota | 1289.70 | Virginia | 90.71 | Virginia | 270.47 | Rhode Island | 513.21 |
| 11 | Maryland | 1272.95 | Texas | 90.55 | Iowa | 247.39 | Massachusetts | 509.98 |
| 12 | Nevada | 1267.24 | S. Dakota | 90.52 | N. Carolina | 246.41 | Oregon | 482.73 |
| 13 | Wisconsin | 1259.66 | Idaho | 90.49 | Idaho | 233.13 | Vermont | 453.68 |
| 14 | Michigan | 1230.49 | Kentucky | 90.43 | Michigan | 229.61 | Nebraska | 448.94 |
| 15 | Montana | 1226.70 | Connecticut | 90.37 | Rhode Island | 227.20 | Wisconsin | 439.42 |
| 16 | Rhode Island | 1222.74 | Mississippi | 90.34 | Utah | 226.66 | Iowa | 436.70 |
| 17 | Delaware | 1215.72 | Colorado | 90.34 | Vermont | 220.20 | Kansas | 428.50 |
| 18 | Oklahoma | 1209.58 | N. Carolina | 90.22 | Georgia | 216.51 | Illinois* | 425.81 |
| 19 | Illinois* | 1197.02 | Nebraska | 90.19 | Oklahoma | 212.04 | Colorado | 415.86 |
| 20 | Colorado | 1188.12 | Georgia | 90.13 | S. Carolina | 205.59 | S. Dakota | 385.53 |
| 21 | Washington | 1171.71 | Illinois* | 90.11 | Kansas | 194.51 | Maine | 383.47 |
| 22 | New Mexico | 1141.97 | S. Carolina | 90.10 | Illinois* | 194.46 | Texas | 366.32 |
| 23 | N. Dakota | 1130.71 | Washington | 89.86 | Colorado | 189.95 | California | 351.70 |
| 24 | Iowa | 1129.94 | Pennsylvania | 89.81 | Maine | 186.30 | Washington | 346.48 |
| 25 | Oregon | 1122.03 | New Jersey | 89.66 | Montana | 182.72 | Minnesota | 341.50 |
| 26 | Pennsylvania | 1115.91 | Delaware | 89.64 | New Jersey | 177.27 | Maryland | 339.35 |
| 27 | Vermont | 1106.42 | N. Dakota | 89.60 | Pennsylvania | 167.34 | Arizona | 330.11 |
| 28 | Louisiana | 1101.46 | Maryland | 89.60 | Kentucky | 164.16 | Ohio | 328.28 |
| 29 | Texas | 1079.43 | Arizona | 89.58 | Arizona | 161.51 | Florida | 323.82 |
| 30 | Kansas | 1070.03 | Iowa | 89.53 | W. Virginia | 156.90 | Indiana | 309.98 |
| 31 | Arizona | 1059.70 | Nevada | 89.42 | Arkansas | 154.74 | N. Dakota | 305.72 |
| 32 | Nebraska | 1047.90 | Oklahoma | 89.36 | Missouri | 154.71 | Virginia | 300.37 |
| 33 | Virginia | 1030.41 | Louisiana | 89.23 | Nebraska | 144.31 | Pennsylvania | 291.51 |
| 34 | Maine | 1022.73 | Oregon | 89.14 | Indiana | 136.39 | Utah | 276.67 |
| 35 | Utah | 1011.49 | W. Virginia | 89.11 | Alabama | 123.52 | Hawaii | 263.62 |
| 36 | Ohio | 972.81 | California | 89.08 | Ohio | 115.17 | Georgia | 254.44 |
| 37 | W. Virginia | 954.68 | Massachusetts | 88.81 | Mississippi | 66.83 | Idaho | 235.88 |
| 38 | Florida | 946.17 | Michigan | 88.77 | N. Dakota | 54.12 | Nevada | 230.99 |
| 39 | Georgia | 945.80 | Maine | 88.69 | Louisiana | 52.34 | Missouri | 229.16 |
| 40 | New Hampshire | 925.55 | Utah | 88.60 | Connecticut | 44.31 | N. Carolina | 205.86 |
| 41 | S. Dakota | 916.11 | Rhode Island | 88.60 | New. Hampshire | 16.37 | S. Carolina | 200.43 |
| 42 | N. Carolina | 884.87 | Minnesota | 88.46 | New Mexico | 10.94 | Tennessee | 194.96 |
| 43 | Indiana | 876.14 | Vermont | 88.36 | Tennessee | 9.69 | Delaware | 184.37 |
| 44 | Idaho | 858.87 | Wisconsin | 88.31 | Alaska | 3.70 | Oklahoma | 173.57 |
| 45 | Kentucky | 855.17 | Hawaii | 87.72 | Texas | 0.00 | Mississippi | 162.59 |
| 46 | Missouri | 842.80 | New Mexico | 87.57 | Florida | 0.00 | W. Virginia | 159.87 |
| 47 | S. Carolina | 841.90 | Montana | 87.20 | Washington | 0.00 | Arkansas | 156.30 |
| 48 | Tennessee | 772.14 | D.C. | 86.78 | Nevada | 0.00 | New Mexico | 152.83 |
| 49 | Alabama | 763.56 | New York | 85.46 | S. Dakota | 0.00 | Kentucky | 150.23 |
| 50 | Mississippi | 751.02 | Wyoming | 79.42 | Wyoming | 0.00 | Louisiana | 134.57 |
| 51 | Arkansas | 728.88 | Alaska | 56.96 | Alabama | 89.06 | | |
| | U.S. Ave. | $1175.47 | | 89.42 | | $233.39** | | $361.59 |

**Based on 44-state average.
Sources: *Governmental Finances in 1981–82, State Governmental Finances in 1981–82*, U.S. Department of Commerce, Bureau of the Census; *Survey of Current Business*, U.S. Department of Commerce, Bureau of Economic Alnalysis.

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## ILLINOIS BUSINESS INDEXES

| | Percent Change July 1983-July 1984 | July 1984 | June 1984 | May 1984 | April 1984 | July 1983 | June 1983 |
|---|---|---|---|---|---|---|---|
| Coincident indicator (1969=100) | 8.62% | 111.28 | 111.33 | 109.07 | 108.35 | 102.45 | 10 |
| Employment-manufacturing (in thousands)[e] | 1.21% | 987.6 | 998.5 | 988.1 | 985.2 | 975.8 | 9 |
| Average weekly hours-manufacturing[e] | 1.00% | 40.6 | 41.1 | 41.0 | 41.4 | 40.2 | |
| Weekly earnings-manufacturing[e] | 4.10% | $408.44 | $412.23 | $411.64 | $414.83 | $392.35 | $39 |
| Help wanted advertising-Chicago (1969=100)[a] | 94.44% | 105 | 101 | 92 | 90 | 54 | |
| Help wanted advertising-St. Louis (1969=100)[ac] | 30.19% | N/A | 69 | 57 | 57 | 50 | |
| Retail sales (in millions)[b] | -1.09% | $4,531 | $5,038 | $5,137 | $4,854 | $4,581 | $4 |
| Coal production (in thousands) | 0.00% | 3,615 | 5,560 | 6,147 | 5,657 | 3,615 | 4 |
| Petroleum products (in thousands)[e] | -4.33% | 2,430 | 2,352 | 2,400 | 2,310 | 2,540 | 2 |
| Vendor performance | 15.38% | 60.0% | 66.0% | 70.0% | 71.0% | 52.0% | |
| Building permits (in thousands) | | | | | | | |
| Residential housing units | -9.84% | 3.474 | 3.524 | 3.712 | 2.914 | 3.853 | 2 |
| Value of residential housing | -5.56% | $183,564 | $195,876 | $220,037 | $169,758 | $194,364 | $166 |
| Value of nonresidential construction | | | | | | | |
| Industrial buildings | 116.58% | $28,933 | $15,453 | $21,282 | $10,237 | $13,359 | $10 |
| Office, banks, and professional buildings | -38.23% | $30,190 | $33,893 | $43,423 | $31,563 | $48,877 | $24 |
| Stores and other mercantile buildings | 37.16% | $26,013 | $20,959 | $18,603 | $16,975 | $18,966 | $11 |
| Other | -8.31% | $3,431 | $3,591 | $5,783 | $4,089 | $3,742 | $2 |
| Consumer price index (December 1977=100) | | | | | | | |
| North Central US[c] | 3.69% | - | 168.5 | - | 167.3 | - | 1 |
| North Central/population more than 1,250,000[c] | 3.69% | - | 171.3 | - | 169.9 | - | 1 |
| North Central/population 385,000 to 1,250,000[c] | 3.52% | - | 167.7 | - | 166.8 | - | 1 |
| North Central/population 75,000 to 385,000[c] | 4.04% | - | 164.7 | - | 163.4 | - | 1 |
| North Central/population less than 75,000[c] | 3.45% | - | 164.8 | - | 164.5 | - | 1 |
| Chicago (1967=100) | 3.74% | 310.8 | 310.0 | 306.9 | 306.7 | 299.6 | 2 |
| St. Louis (1967=100) | 3.14% | 308.7 | - | 305.4 | - | 299.3 | |
| | | 1983:IV | 1983:III | 1983:II | 1983:I | 1982:IV | 1982:III |
| Personal income (in millions)[d,e] | 6.44% | $149,354 | $146,943 | $143,159 | $140,630 | $140,320 | $138 |
| Per capita personal income[d,e] | 8.62% | $13,003 | $12,793 | $12,464 | $12,244 | $12,238 | $12 |

[a]The Conference Board, "*Help Wanted Advertising*, July 1984. [b]Latest month projected by BEBR. [c]Percent change between June 1983 and June 1984. [d]Percent change between 1982:IV and 1983:IV. [e]Recent month is preliminary figure.

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# An Economic Overview of Recent Administrations

David Lee and Deborah Mustell

In the wake of a presidential campaign where economic issues stood at the forefront, it would be interesting to review recent presidential administrations and compare how each affected the composition of government expenditures as well as the performance of the economy in general. To that end, this article will examine five specific indicators of economic activity — interest rates, unemployment, prices, gross national product, and net government expenditures — in addition to the major components of government spending — defense, nondefense, grants to state and local governments, net interest paid, and transfer payments — from the beginning of 1973 to the end of 1983. It is hoped that the selection of these variables will provide a quick overview of the economy in a way that is both clear and concise.

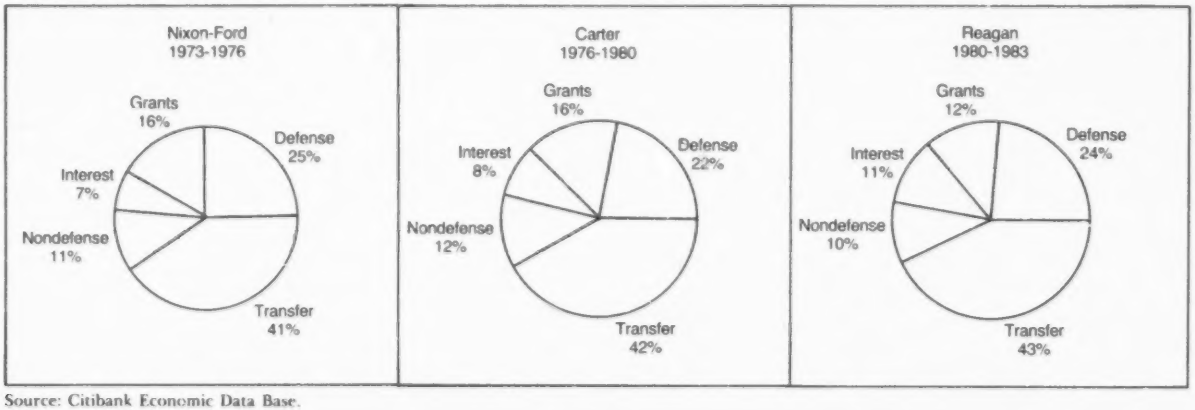
However, caution should be exercised in interpreting these results. Since the economic consequences of policy decisions take time to develop, the degree to which a certain administration can effectively deal with economic issues is significantly influenced by policies implemented in the past. Indeed, the first budget of an administration is prepared by the predecessor. Moreover, the business cycle itself may either enhance or detract from the policy objectives of a given presidency, for even the most sound economic policies could be rendered impotent in the face of a severe recession. Finally, one should be careful about making any assertion of causality between the various series presented below. Often, such causality is spurious, and inferences made from these deductions can be misleading. Yet with these precautions in mind, the following analysis provides an interesting basis for comparing the performance of the economy over recent presidential administrations.

## The Composition of Federal Expenditures

Charts 1, 2, and 3 depict the average percent of federal spending devoted to five different categories: defense; grants in aid to state and local governments; transfer payments to persons and foreign agents; interest paid to persons, businesses, and foreign agents, less interest received by the US government; and other nondefense spending. The biggest change has occurred in interest expenditures and grants to state and local governments. Where Nixon and Ford spent 7 percent of their revenues on interest, Reagan spends 11 percent; and where state and local governments received 16 percent of federal expenditures from the Nixon-Ford and Carter administrations, they receive only 12 percent of Reagan's budget. Transfer payments have increased slightly as a percent of the

Charts 1, 2, and 3

**Composition of Federal Expenditures**




Source: Citibank Economic Data Base.

budget under Reagan, as has defense. Reagan's defense spending, at 24 percent of the budget, though, is not as high as that of Nixon and Ford (25 percent).

### The Deficit

Chart 4 shows federal receipts and expenditures from the Nixon-Ford years through 1983. The shaded area between the curve is, obviously, the budget deficit. The deficit has existed for each of the three administrations studied, but has experienced very significant increases in only the last. The largest deficit in the Nixon-Ford administration was during the 1975 recession, at about $69 billion. The deficit was reduced to almost $16 billion and then increased toward the end of the Carter years to about $61 billion. The deficit exploded during the Reagan administration's first three years to almost $182 billion.

### Interest Rates

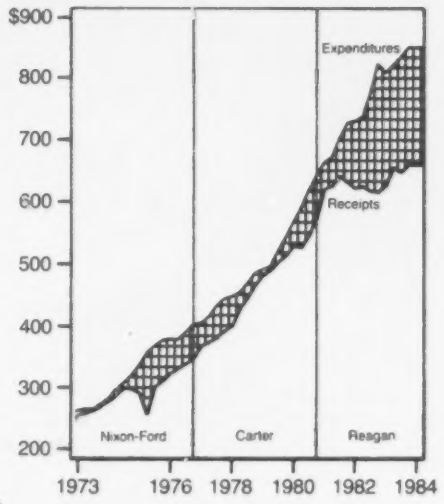
Three interest rates were chosen for this study — the prime rate, the 3-month Treasury Bill rate, and the yield on Moody's AAA Bonds (see Chart 5). In the Nixon-Ford administration, the prime peaked at almost 12 percent, then fell to 6.5 percent at the end of 1976; the T-Bill rate peaked at 8.3 percent and fell to 4.7 percent; the AAA bond yield peaked at 9 percent, while falling to just over 8 percent by the end of 1976. In the Carter administration, all three rates rose steadily until the beginning of 1980, when they fell for a quarter and began increasing to new highs. By the end of 1980, the prime was at 16.7 percent, 10 percentage points higher than at the beginning of his term; the T-Bill rate was at 13.7 percent (9 percentage points higher), and AAA bonds were at 12.8 percent (4.7 percentage points higher). The years of the Reagan administration have been characterized mostly by falling rates. The prime peaked at 20.3 percent in the third quarter of 1981 and then fell to 11 percent by the last quarter of 1983; the T-Bill rate went from a high of 15.1 percent to 8.8 percent by the end of 1983; and the AAA bond yield fell from a 15 percent high to 12.4 percent by last year's end.

### Unemployment

Three categories of unemployment rates were singled out to study — white, nonwhite, and teen (see Chart 6). During the Nixon-Ford years, the level of unemployment in these categories rose and then leveled off as the unemployment rate for whites peaked at 8.2 percent in 1975; for nonwhites, at 14.2 percent; and for teens, at 20.4 percent. The rates fell and then trended upward in the Carter years, ending up at 6.5 percent, 13.8 percent, and 18.1 percent, for whites, nonwhites, and teens, respectively, by the final quarter of 1980. As for the first two Reagan years, rates held their steady upward trend until the last quarter of 1982, when they reached a peak at 9.5 percent (white), 18.7 percent (nonwhite), and 24.1 percent (teen). They fell steadily to their levels of 7.4 percent, 16.4 percent, and 20.6 percent

Chart 4

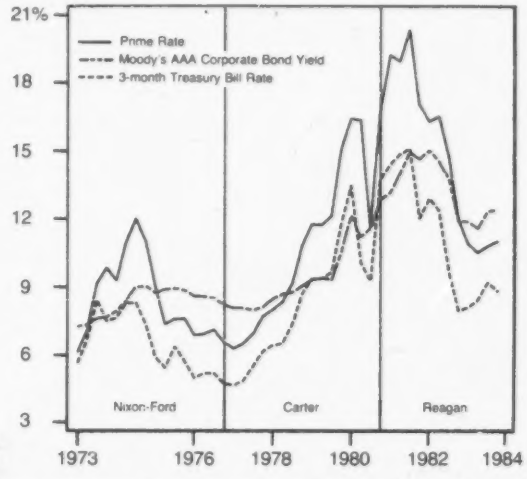
**Federal Receipts and Expenditures (billions)**




Quarterly amounts at annual rates.
Source: Citibank Economic Data Base.
All rates are percent per annum, not seasonally adjusted, quarterly averages.

Chart 5

**Selected Interest Rates**




All rates are percent per annum, not seasonally adjusted, quarterly averages.
Source: Board of Governors of the Federal Reserve System.

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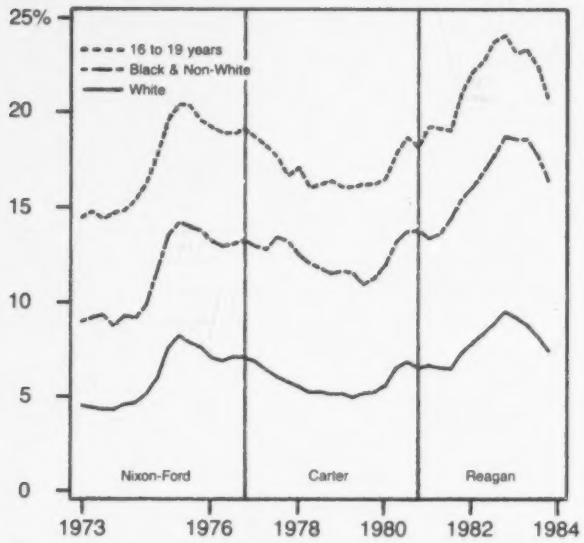
Chart 6

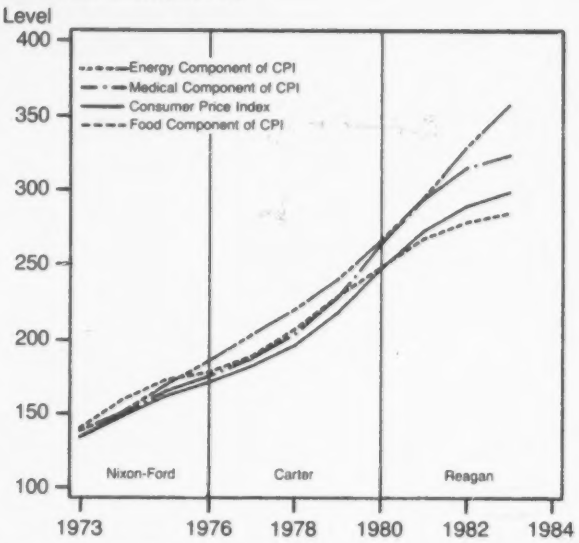
**Selected Unemployment Rates.**




Rates are seasonally adjusted, quarterly averages, for both sexes.
Source: US Department of Labor, Bureau of Labor Statistics.

Chart 7

**Selected Price Indexes (1967=100)**




Annual averages of monthly numbers.
Source: US Department of Labor, Bureau of Labor Statistics.

for whites, nonwhites, and teens, respectively, at the end of 1983.

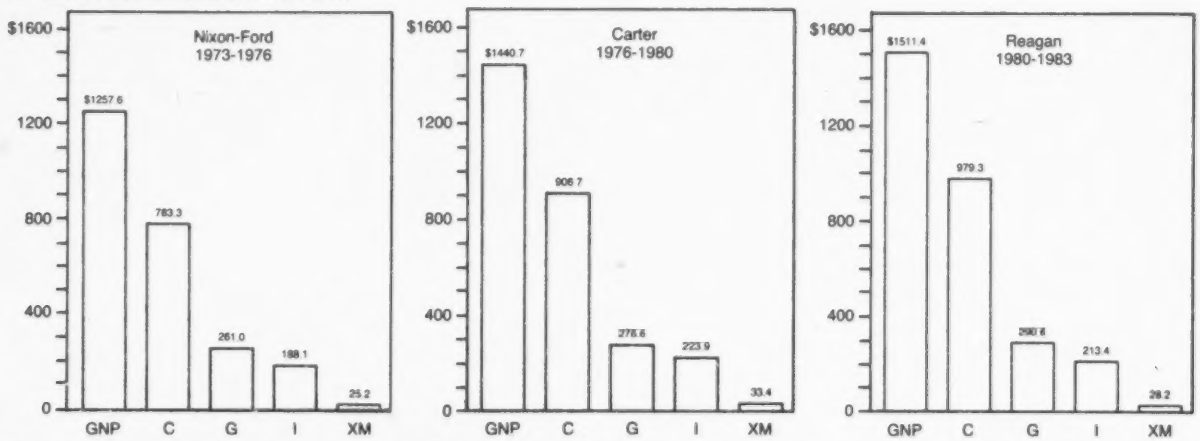
## Prices

Chart 7 depicts the levels of the Consumer Price Index (CPI) and three of its components — energy, medical, and food. As is evident, prices in general rose steadily during all three administrations studied. The highest rate of increase in the CPI occurred during the Carter administration, when inflation averaged 9.7 percent per year. The Reagan presidency has witnessed an inflation rate of 6.5 percent per year. The energy component of the CPI has remained above the medical and food components of the CPI and the CPI as a whole. This component increased at a 17.5 percent rate during the Carter years, while increasing at only 7.2 percent during the last three years. Medical costs have had the second highest increase of the four measures of prices, increasing at about the same rate during the past three administrations when it rose 10.3 percent (1973–1976), 9.5 percent (1976–1980), and 10.4 percent (1980–1983) per year.

(continued on p. 11)

Charts 8, 9, and 10

**GNP and its Components (billions of 1972 dollars)**




GNP=Gross National Product; C=Personal Consumption Expenditures; G=Government Purchases of Goods and Services; I=Gross Private Domestic Investments; XM=Net exports. Annual data averaged by administration.
Source: US Department of Commerce, Bureau of Economic Analysis.

# REAL ESTATE DEVELOPMENTS
# The Adjustable Rate Mortgage and Illinois Consumers
# A Summary of a 1984 Survey

**Mona J. Gardner and Dixie L. Mills**

Over the past few years, home ownership and methods for financing home purchases have sparked extensive and sometimes heated debate among consumers, thrift institutions, and regulatory agencies. In fact, few issues have attracted as much attention as mortgage financing, because home ownership continues to be an important goal of American families. The effort to develop mortgage instruments that will meet the needs of borrowers and lenders alike has produced some innovative products, often called Alternate Morgage Instruments (AMIs), to distinguish them as a group from the standard Fixed Rate Mortgage (FRM). In the spring of 1981, the Federal Home Loan Bank Board approved a mortgage instrument for federally chartered savings institutions (known as the Adjustable Rate Mortgage or ARM) that gave them unprecedented discretion in setting mortgage terms.

The ARM regulations, unlike those for many previous nontraditional mortgages, allow an unlimited *range* of rate or payment adjustments over the life of the loan and unlimited *frequency* in rate and payment changes. They also allow the lender to choose any interest rate index, as long as it is beyond his control and readily available to the borrower. Negative amortization and extension of the loan term (up to a maximum of 40 years) to avoid payment increases may also be included in the loan agreement. As lenders have begun to emphasize such mortgage instruments, there has been a growing concern about whether consumers will be able to understand and evaluate the alternatives with which they are faced, and whether they will be willing to accept mortgages that expose them to a higher degree of interest rate and other risks than did FRMs.

The financial problems of the thrift industry in 1980–1982 have demonstrated that widespread use and acceptance of AMIs are much needed developments if savings and loans are to survive another period of relatively high interest rates. And, as regulators have stated, borrowers' understanding, acceptance, and ability to negotiate terms are central to the ARMs' success. Yet the financial concepts involved in the ARM are relatively complex and may be unfamiliar to most borrowers.

Little data have been gathered on consumer response, due to the relative newness of ARMs. There has been only one nationwide study conducted (in the spring of 1982 for the Federal National Mortgage Association [FNMA]), but the Midwest was not heavily represented in the sample. To ascertain the progress in Illinois toward achieving consumer acceptance and understanding, we conducted a mail survey of Illinois residents during April and May of 1984. The objective was to determine their awareness of and attitudes toward alternative mortgage instruments in general, and the ARM in particular. This article provides a summary of our principal findings.

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From a total of 816 Illinois residents to whom questionnaires were mailed, returns were received from 352, for a response rate of 43.1 percent. The data were obtained by conducting a systematic random sample of all graduates (over 13,000 persons) of the College of Education at Illinois State University now living in Illinois. The sampling frame was stratified by zip code, so that those chosen would reflect the population distribution within the state, based on 1980 census data. Actual returns were very similar to the state population distribution. The sample contained no bias in favor of prior exposure to finance-related terms and concepts and included persons in all age groups (graduates from the 1920s to 1983).

The results reflect the opinions of a well-educated group of consumers; few actual respondents were not college graduates. (The FNMA survey also had a proportion of college graduates much higher than the national average.) Fifty-one percent lived in Chicago or the Chicago suburbs; and 37 percent lived in rural areas, and the other 12 percent were from smaller cities. Of the respondents 72 percent were female; 32 percent were 30 years of age or younger, and 9 percent were over 50. Over three-quarters of the respondents (77 percent) had owned at least one home, and 46 (13 percent) had purchased a home since January 1983.

## Summary of Results

In comparison to the FNMA 1982 survey, our Illinois respondents were more likely to have heard of a fixed-rate mortgage. This difference cannot be completely explained by the fact that our respondents were college-educated, since only 86 percent of FNMA's college graduates had heard of an FRM, compared to almost 96 percent of ours. Newspapers were the most common source of information about mortgages, followed by friends. The Illinois residents seem to be quite aware of developments in the primary mortgage market. One-third of them said that FRMs were not being offered in their areas, and in a recent survey of Illinois savings and loan associations we found that 36 percent were, in fact, not offering FRMs around the time of the consumer survey. Of the participants 65 percent could respond to an open-

ended question about AMIs available in their area, and the most common instrument named was a mortgage with a variable rate. A higer proportion of our respondents could name these mortgage instruments than was found in 1982; the two years' passage of time between surveys could well account for this difference. (See Table 1)

We were also interested in whether respondents knew *why* AMIs were offered, and if so, whether they could give reasons and indicate the extent to which they agreed with them. Of our respondents 75 percent indicated that they had heard or read why AMIs (not confined to ARMs) were offered. Of these, 59 percent agreed that lending institutions needed to offer them. The most common single explanation given for AMIs was that they made homes more affordable — although, collectively, explanations suggesting that AMIs benefitted the lender outnumbered those that mentioned consumer advantages. Some previous research suggests that people are skeptical of the motivations of lending institutions, so that may explain the larger number of responses indicating that lenders are likely to benefit from these instruments. (See Table 2.)

When asked to respond to the statement that "most people" prefer fixed-rate mortgages, 80 percent agreed. This is higher than the 69 percent of the FNMA respondents who agreed with that statement in 1982. Ours were less likely to agree that most people will not buy a home unless they can get a fixed-rate mortgage (43 percent of their college graduates versus 24 percent of our respondents, see Tables 3 and 4).

Table 1

Types of AMIs Known (Multiple Responses Permitted)

"If you have heard of AMIs, please describe the types with which you are most familiar"

| | Count | Percent |
|---|---|---|
| 1 = Variable Rate | 183 | 79.6 |
| 2 = Balloon | 80 | 34.8 |
| 3 = Graduated payment | 21 | 9.1 |
| 4 = Contract with seller | 8 | 3.5 |
| | 20 | 8.7 |

230 (65.3 percent) of the 352 respondents were spontaneously able to describe at least one type of AMI. The percent figures below are based on those 230 respondents.

Table 2

Reasons for Alternate Mortgages

| Number of respondents = 252 | Count | Percent |
|---|---|---|
| Makes homes affordable | 63 | 25.0 |
| More profits for lender | 48 | 19.1 |
| Protects lender against economic uncertainty | 45 | 17.9 |
| Lender not locked into fixed rate | 41 | 16.3 |
| Lender recovers cost of funds | 15 | 6.0 |
| Choice for consumer | 10 | 4.0 |
| Other | 38 | 15.1 |

Multiple responses were permitted to this open-ended question asking respondents who said they knew why AMIs were offered to explain the reasons.

We then asked a series of questions on respondents' awareness of various ARM features they might encounter. The vast majority had heard of ARMs in general (91.2 percent) and of mortgages with changing monthly payments (83.5 percent). (The differences in responses to these two questions may indicate that some people are not sure how a variable rate mortgage could affect their monthly cash flows.) Almost half (47.4 percent) had heard of mortgages that allow lenders to choose the interest rate index, although fewer (36 percent) had opinions on which index, if any, was best for the borrower. A relatively small proportion of respondents had heard of negative amortization (31.3 percent) or the possibility of extending a mortgage loan term (22.7 percent). (See Table 5.)

This apparent consumer uncertainty surrounding interest rate indexes is borne out by our previous research on mortgage lending practices in Illinois and Wisconsin and on the experiences of loan officers in these states with explaining ARMs to consumers. Over 70 percent of the 345 loan officers we surveyed stated that issues surrounding the choice of an index and its relationship to mortgage rates were moderately or

Table 3

Do you agree or disagree that most people prefer fixed-rate mortgages?

| | Number | Percent | Cumulative % |
|---|---|---|---|
| 1 = Agree Strongly | 143 | 42.8 | 42.8 |
| 2 = Agree Somewhat | 123 | 36.8 | 79.6 |
| 3 = Disagree Somewhat | 29 | 8.7 | 88.3 |
| 4 = Disagree Strongly | 4 | 1.2 | 89.5 |
| 5 = Not Sure | 35 | 10.5 | 100.0 |
| Total | 334 | 100.0 | 100.0 |

Table 4

Do you agree or disagree that, for most people, the purchase of a home depends upon getting an FRM?

| | Number | Percent | Cumulative % |
|---|---|---|---|
| 1 = Agree Strongly | 20 | 5.8 | 5.8 |
| 2 = Agree Somewhat | 84 | 24.3 | 30.1 |
| 3 = Disagree Somewhat | 148 | 42.9 | 73.0 |
| 4 = Disagree Strongly | 44 | 12.8 | 85.8 |
| 5 = Not Sure | 49 | 14.2 | 100.0 |
| Total | 345 | 100.0 | 100.0 |

Table 5

Number of Respondents Aware of Various Mortgage Features

| Are you: | Yes | Percent |
|---|---|---|
| Aware of mortgages with a variable rate? | 321 | 91.2 |
| Aware of changing monthly mortgage payments? | 294 | 83.5 |
| Aware that lenders can choose a rate index? | 167 | 47.4 |
| Aware of negative amortization? | 110 | 31.3 |
| Aware of extension of loan term? | 80 | 22.7 |

These percentages are calculated as a proportion of the total number of Illinois respondents (352) to allow for direct comparison.

very difficult for customers to understand. The topic of an index's relationship to a borrower's mortgage rate was also the one on which loan officers reported spending the most time in meetings with prospective borrowers.

The final series of questions asked about consumers' attitudes toward various ARM features versus an FRM. The most negative reaction was to an ARM without rate/payment caps, with 72.2 percent of respondents stating that they would not accept such an ARM even if there were no fixed-rate alternative. (This is in agreement with the perceptions of thrift institution officials in Illinois, who named the lack of a rate/payment cap as the ARM feature consumers most dislike.) The next most unacceptable feature to our consumers was an ARM with one or more yearly adjustments, which would be refused by 63.6 percent. The potential for negative amortization was rejected as an acceptable alternative by 50.3 percent of our respondents, compared to 46 percent of FNMA's participants who found it "not very" or "not at all" attractive. Capped ARMs and those with 3-to-5 year adjustments would be acceptable to the majority of our respondents, if they carried an initial lower rate than an FRM or if an FRM were unavailable. Few respondents preferred any ARM to an FRM, with the 3-to-5 year adjustment feature preferred by the largest percentage (3.5 percent).

Table 6 shows the response as to which of five ARM features are unacceptable.

We also attempted to determine what premium respondents would pay to obtain an FRM over a capped ARM with annual adjustments and a 12 percent initial rate (See Table 7). The majority (59.9 percent) said they would pay no more than 13–13.5 percent to avoid the ARM. About 20 percent, however, were unsure.

Data on the acceptability of various ARM features to Illinois residents should be of interest to mortgage lenders. Thrift institutions in the state do not seem in tune with consumer preferences. Our lender survey showed that only 48 percent of the ARM plans offered in 1983–1984 had some kind of cap on rate/payment increases over the life of the mortgage. Only 25 percent of the lenders offered ARM plans with adjustments every 3 to 5 years. And 59 percent offered ARMs with annual or more frequent adjustments, a feature found unacceptable by 64 percent of our Illinois respondents. It is unlikely, therefore, that Illinois lenders will find their ARM plans as popular as they might like, as least if our participants' views are shared by those entering the housing market in the near future. Furthermore, most lenders in Illinois who were offering both ARMs and FRMs were offering their customers an interest rate discount of 1–1½ percent or *more* as an incentive to take an ARM. Our consumer survey indicates that this is more than is necessary if some limitation is placed on the borrower's exposure to interest rate risk.

Table 6

Number of Respondents Finding a Particular ARM Feature Unacceptable

| Type of ARM: | Number | Percent |
|---|---|---|
| Without caps | 254 | 72.2 |
| With 1 or more yearly adjustments | 224 | 63.6 |
| With negative amortization | 177 | 50.3 |
| With 3-to-5 year adjustments | 52 | 14.8 |
| With rate/payments caps | 41 | 11.6 |

(Based on a total response rate of 352.)

Table 7

Frequency Distribution for Highest Acceptable FRM Payment/Rate versus a Capped ARM with Annual Adjustments and a 12 Percent Initial Rate

| | Number | Percent | Cumulative % |
|---|---|---|---|
| $665 (13) | 124 | 37.3 | 37.3 |
| $690 (13.5) | 75 | 22.6 | 59.9 |
| $710 (14) | 30 | 9.0 | 69.0 |
| $740 (14.5) | 2 | 0.6 | 69.6 |
| Other Amount/(%) | 34 | 10.2 | 79.8 |
| Not Sure | 67 | 20.2 | 100.0 |
| Total | 332 | 100.0 | 100.0 |

Finally, we asked participants whether they made interest rate predictions, and, if so, what they were. Fifty-nine percent said they made predictions, and *86 percent* of those expected rates to go up in 1984 (despite the oft-quoted cynic's view that rates go down in a presidential election year). This was higher than the 31 percent of FNMA's midwestern respondents who expected rate increases during the two to three years following the 1982 survey. Their overwhelming belief in increased rates no doubt helps to explain our respondents' thorough dislike of uncapped and/or frequently adjusted mortgage rates. We had so few respondents who expected rates to go down — in fact, only 14 people — that examining their responses separately was not useful. However, further research should be devoted to the relationship between interest rate expectations, rate levels, and attitudes toward various ARM features, since little evidence has been collected on this issue.

Generally, our prior expectations about the attitude of consumers toward various ARM features were strongly supported. The ARM features most likely to increase uncertainty, and thus lower the utility of a housing purchase, were rejected by a large majority of our respondents, even if combined with a lower initial rate than an FRM. On the other hand, other ARM features that mitigate this uncertainty somewhat were seen as acceptable because of the increase return to housing that a lower mortgage rate brings.

It is interesting to note that the negative amortization feature, criticized by consumer groups and Congressional committees, was by no means the most disliked ARM feature. Clear our respondents objected much more strongly to uncapped mortgage rates and frequent adjustment periods. This suggests that providing for a savings component in a financing ar-

rangement is less significant than minimizing the burden of payment uncertainty.

### Demographic Differences

We also examined the extent to which Illinois residents differed according to the type of community in which they lived, their age, homeownership, and/or sex. There were not as many significant contrasts as we expected.

There were significant differences in how likely Illinois residents were to know about reasons for AMIs, according to their age. Older residents were more likely to know than those 35 or under. They were also more likely to agree with the idea that "most people" prefer FRMs. Finally, those over 35 indicted that they would not pay as high an interest rate premium to obtain an FRM over a capped ARM.

Significant differences were also apparent in some responses of male and female participants. Males revealed a higher degree of awareness of most ARM instruments and features than females and were more likely to know why AMIs were being offered by lending institutions. When various terms and features of ARMs were described to participants, however, we found no relationship between the acceptance or rejection of ARMs and the respondent's sex.

When comparing responses on the basis of homeownership, we found that homeowners were more aware of the reasons for AMIs and of several specific ARM features, such as the possibility of changing payments and the lender's ability to choose an index. The differences in awareness among these two groups of respondents were among the most pronounced of any differences we detected in the study. Owners were also more likely to agree that most people prefer FRMs. However, they were less likely to agree that home purchases depend upon an FRM (in both cases, nonowners were more likely to be unsure).

Contrary to our expectations, homeowners indicated they were significantly more willing to accept every ARM feature about which they were asked except negative amortization. A higher proportion of Illinois owners found ARMs with negative amortization unacceptable. This result suggests that the investment feature of home ownership is still seen as an important benefit to some. In all the questions about attitude toward ARM features, nonowners were more likely to be unsure of their opinions. The tendency to be ambivalent toward the ARM indicates that lack of information may have been the main reason for many of the differences between owners and nonowners.

Finally, nonowners were significantly more willing to pay a higher premium to avoid a capped ARM than were owners. We were expecting people who had owned homes to be more anxious to avoid the uncertainty of an ARM, but it is possible that the greater level of awareness of homeowners about mortgage finance makes them less fearful of the ARM and more attuned to its potential benefits (such as a rate decrease).

To provide an interesting basis of comparison for the Illinois consumer, we also polled a sample of Wisconsin residents. State-chartered thrift institutions in Wisconsin have offered variable rate mortgage instruments for a number of years, while these instruments are a relatively recent phenomenon in Illinois. We did not find as many significant differences in awareness between the two states as we had anticipated. Wisconsin residents were significantly more likely to have heard of mortgages that allow loan term extension, but this feature is quite uncommon in both states. The striking similarity in degree of awareness seems to reflect the speed with which information about ARMs has received attention in the media and among financial institutions in Illinois. (Even though ARMs were approved in 1981, the depressed state of the housing market in Illinois prevented widespread emphasis on these instruments until mid-1983.)

Illinois residents were more likely to agree that "most people" will not buy a home without an FRM. This finding no doubt occurred because Wisconsin residents — having faced ARMs for years now — realize that home purchases do continue without FRMs. Furthermore, most Illinois residents have not yet had to buy a home without having access to an FRM, so they may find the possibility unimaginable at the present time.

When the acceptability of ARM features was examined, there were also few significant differences between the states. Wisconsin residents were significantly more likely to find a capped ARM acceptable, but fully 68.4 percent of the Illinois residents (compared to 80 percent in Wisconsin) found that type of ARM acceptable. The speed with which information on mortgages has been disseminated in Illinois seems to be matched in general by the speed with which consumers' attitudes have come to coincide in the two states.

### Summary

We should note in conclusion that, because of the high education level of our sample, it would be inappropriate to assume that their widespread awareness of ARMs applies to the general population. Our college educated respondents may have learned about these innovative instruments sooner than other persons and grasped their implications more readily. (The education factor does not, however, have any effect on the comparison of Illinois and FNMA college graduates.) With that caveat in mind, we can draw several other conclusions.

Consumers recognize that ARMs are designed primarily for the benefit of lending institutions. Despite this fact, some ARM features are not completely unacceptable, especially if an initial rate discount is offered and the consumer is given some opportunity to share the risk of an ARM with the lender. In particular, consumers want to avoid the uncertainty of frequent adjustments and want some limitation placed on rate/payment increases. They also seem to recognize that ARMs, or at least some alternatives to the fixed-rate mortgage, are inevitable, because few believed that home purchases are dependend upon the availability of FRMs. While many of these findings

confirm previous nationwide studies, our respondents were significantly more likely to believe that FRMs are not necessary for home purchases than has previously been reported.

Lenders may be able to increase the speed with which ARMs are accepted and to avoid making large price concessions if they are sensitive to the non-price features of ARMs that are critical to consumer acceptance of these instruments. Interestingly enough, lenders in Illinois do not appear to have grasped this point.

One finding that may have long-term ramifications is that younger people and nonhomeowners are the least receptive to ARM terms. But these are the most likely groups to confront the ARM in the future. Therefore, the need for consumer education continues. Although the degree of awareness of ARM features has increased, there are still many potential buyers who feel they are unable to evaluate their impact adequately. It is also likely that with education, the attitudes of nonowners and younger people in the Midwest could become more positive.

# Changing Patterns in Higher Education

**Charles Dold**

In recent years, college students have become increasingly sensitive to market conditions. In both 1972 and 1982 the public and private colleges and universities in Illinois awarded approximately 45,000 bachelor's degrees. But the distribution of degrees by field changed dramatically. Prior to 1972, the factor of growth dominated any review of enrollments with (on-campus, headcount) enrollment increasing approximately four-fold at all levels during the post-war period.

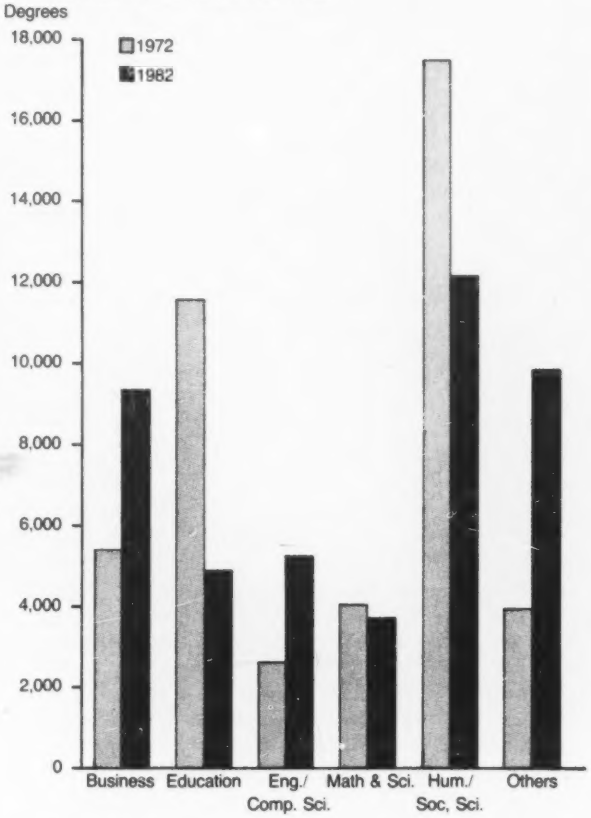
Chart 1 shows bachelor's degrees awarded in Illinois during 1972 and 1982 by academic category. Business majors have shown large increases in percentages (75 percent) and numbers. Education majors have shown large decreases in both percentages (52 percent) and numbers. Engineering and computer science majors have essentially doubled during the period. Mathematics and biological and physical sciences remained at about the same level in 1972 and 1982. The number of students in the humanities, social sciences, and fine arts dropped 30 percent. "All other" majors increased 150 percent. This included many rapidly growing professional fields such as nursing and the other medical areas and social work. It also included fast-growing interdisciplinary fields.

These changes have different implications for the colleges and universities, for the students themselves, and for the state and nation. Colleges and universities have responded to changed enrollment patterns. Staffing adjustments have been particularly difficult and costly. Shortages of faculty occur in the very fields now in high demand, and the government is competing for the same talent, bidding up salaries. The supply of potential college teachers in some of these high demand fields has lagged behind the rapid increases in student enrollments. In fact the number of engineers with a doctorate has actually declined during the period because the inducements to enter employment after completing a baccalaureate are so great that many students are diverted away from graduate education. Additionally, the colleges have found themselves overstaffed in those academic areas where student demand has fallen. College teachers usually have long-term contracts, and because of their specialized training, they cannot be reassigned to other disciplines, so staffing changes come slowly through attrition.

Colleges and universities have adjusted in other costly ways. Although they have met needs for specialized buildings and laboratories and have furnished computers and other "high-tech" equipment to students who require such support, they have not been able to respond fully to changed student demands. Student demand for places in engineering classes, for example, has exceeded openings, and many students cannot be accommodated. Entry requirements have risen to very high levels. If the schools had fully

Chart 1

**Bachelor's Degrees Conferred (1972 and 1982)**




Source: Illinois Board of Higher Education, *Data Book on Illinois Higher Education*, May 1980 and May 1983.

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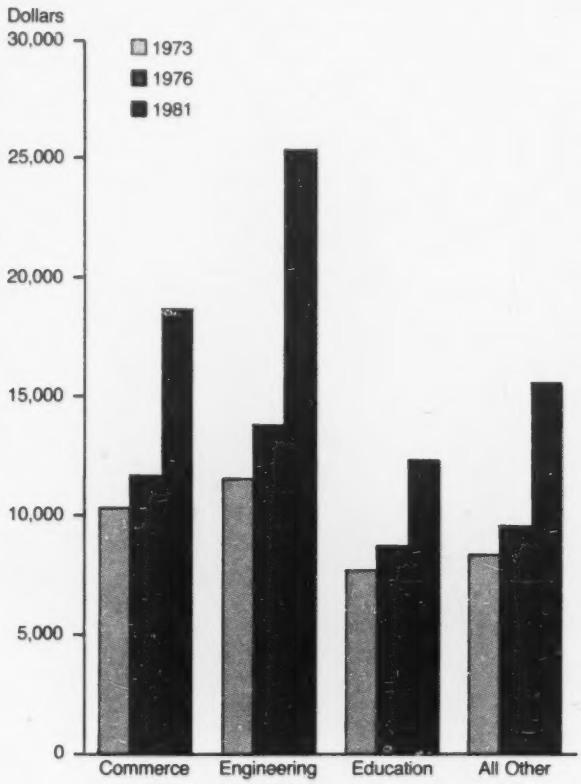
responded to student demand, the numbers of graduates in these fields would be even higher than it is at present.

College and university graduates have probably been successful in meeting their economic goals. One large university surveys its graduates shortly after graduation and after longer periods of time to find out what their jobs and salary levels are. That university is organized into colleges of commerce and business administration, engineering, and education, categories similar to those in the previous chart. Chart 2 shows average bachelor's degree salaries at two campuses of this university for the classes of 1973, 1976, and 1981. Commerce and engineering, with the fastest growing enrollment, not only have the highest salaries in each of those years, but they are also the areas of the most rapid salary growth. Education has the lowest salaries in each of these three years and the lowest salary growth. The "all other" category, which in this case includes social sciences and humanities, shows average salaries and salary growth somewhat above education but considerably below commerce and engineering.

Chart 2

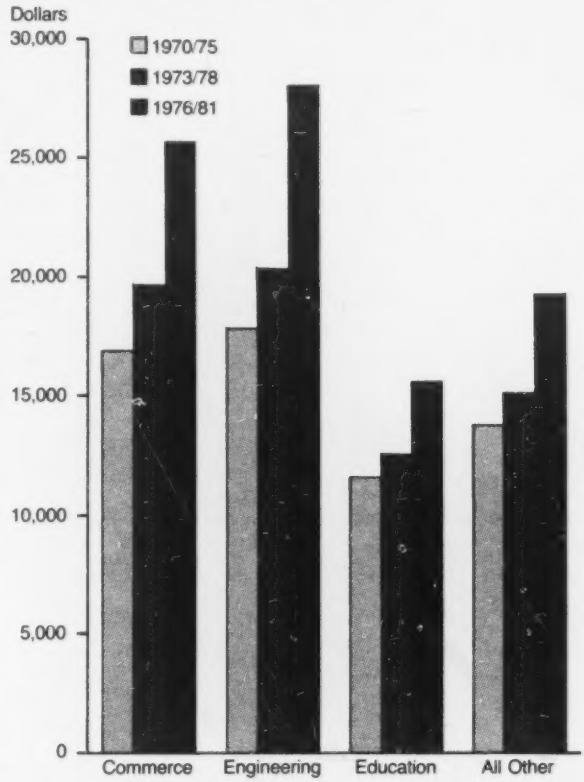
**Average Salaries by College, One Year from Graduation**




Source: University of Illinois "Graduate Survey" (unpublished) for 1973, 1976, 1983.

Chart 3

**Average Salaries by College, Five Years from Graduation**




Source: University of Illinois "Graduate Survey" for 1970, 1973, 1976.

Chart 3 shows similar data for baccalaureate graduates five years from graduation for the class of 1970 surveyed in 1975, the class of 1973 surveyed in 1978, and the class of 1976 surveyed in 1981. After five years, most of the graduates are in the labor force. Two of these classes were also surveyed one year from graduation. Again commerce and engineering had the highest and most rapidly rising salaries; education, the lowest, and the "all other" category somewhere in between. Whatever philosophical bases can be proposed for the existence of college programs, clearly many students are following economic motives in choosing college curricula and are entering fields with high economic returns.

The colleges and universities have struggled to meet these new demands, but the graduates have reaped the benefits of higher incomes, and the state and nation have an increasing tax base.

# Movie Box Office Successes: Comparing the Oldies with New Hits

**Deborah Mustell**

Blockbuster movie — one of the major goals of anyone having anything to do with the production of a film. Over the years, many movies have been referred to in this way. *Variety*, the magazine of show biz, annually publishes a list of the top-grossing movies of all time. The list is not based on box office grosses, but rather on the revenues received by film distributors from rentals of movies in the United States and Canada. All of the amounts reported, though, are in current dollars, which presents a problem if one wants to compare the movies with each other. Obviously a dollar today is not worth what it was in 1939 when *Gone with the Wind* was released. Furthermore, population has increased and, conceivably, the demand for films along with it. To compare the relative positions of the top-grossing movies, gross receipts with adjustments for inflation and changes in population were calculated.

Chart 1 lists the top 10 movies by gross receipts as published in *Variety*'s last anniversary issue. Chart 2 presents the top 10 movies by gross receipts adjusted for inflation only, and Chart 3 lists the top 10 movies by gross receipts adjusted for inflation and population changes. Some of the movies in Chart 1 — recent high-grossing films such as *Raiders of the Lost Ark*, *Grease*, and *Tootsie* — do not even make it to the inflation-adjusted gross receipts list. Other older movies — like *Gone with the Wind*, *The Sting*, and *The Sound of Music* — appear in the last two tables thanks to the high inflation we have experienced since they were released. It is interesting to note that the movie *Snow White*, released in 1937, is in the top 15 movies ranked by both inflation-adjusted receipts and inflation/population-adjusted receipts.

But there are a few caveats to bear in mind when approaching these rankings. First, the rate of change in the Consumer Price Index (CPI) was used to inflate the receipts of past years to 1983 dollars because an index for entertainment cost was not available for all the years studied. Since this is an overall index, it is very likely that changes in the cost of entertainment have not closely paralleled the movements in prices in general. In fact, the entertainment component of the CPI, added in 1967, has been outstripped by the general index. If this is also true for the years before 1967, when the entertainment component was not calculated, the receipts of older movies have been over-inflated to an amount that puts them higher in the standings than they should be.

Another weakness in the analysis is the data itself. *Variety* states that the data are as accurate as possible but that there is a reluctance on the part of film companies "to revise figures once they [the movies] have passed their first flush of success." On the other hand, though, they also write that "in the current age of nostalgia, particularly, some of the older films have had considerable income, but it is almost never reported." An additional aspect to consider is that these figures represent only the receipts from the United States and Canada. Including foreign receipts would probably change the totals considerably. Whichever of these applies to a particular movie, there is still a large margin of inaccuracy.

A third idea to consider is the number of substitutes for theatrical films that exist now but that did not exist in the past. Television, videocasette re-

Chart 1

Top 10 Movies by Gross Receipts

| Rank | Movie | Gross Receipts |
|---|---|---|
| 1 | *E.T.* | $209,567,000 |
| 2 | *Star Wars* | 193,500,000 |
| 3 | *Return of the Jedi* | 165,500,000 |
| 4 | *The Empire Strikes Back* | 141,600,000 |
| 5 | *Jaws* | 133,435,000 |
| 6 | *Raiders of the Lost Ark* | 115,598,000 |
| 7 | *Grease* | 96,300,000 |
| 8 | *Tootsie* | 94,571,613 |
| 9 | *The Exorcist* | 88,600,000 |
| 10 | *The Godfather* | 86,275,000 |

Chart 2

Top 10 Movies Ranked by Inflation-Adjusted Gross Receipts

| Rank | Movie | Inflation-Adjusted Receipts |
|---|---|---|
| 1 | *Star Wars* | $300,489,976 |
| 2 | *Gone with the Wind* | 293,866,400 |
| 3 | *Jaws* | 239,866,400 |
| 4 | *The Sound of Music* | 237,144,830 |
| 5 | *E.T.* | 215,582,566 |
| 6 | *The Godfather* | 204,296,075 |
| 7 | *The Exorcist* | 171,123,903 |
| 8 | *The Empire Strikes Back* | 168,231,649 |
| 9 | *Return of the Jedi* | 165,500,000 |
| 10 | *The Sting* | 156,298,883 |

Chart 3

Top 10 Movies Ranked by Inflation-Adjusted, Population-Adjusted Gross Receipts

| Rank | Movie | Per Capita Adjusted Receipts |
|---|---|---|
| 1 | *Gone with the Wind* | $1.82 |
| 2 | *Star Wars* | 1.35 |
| 3 | *The Sound of Music* | 1.20 |
| 4 | *Jaws* | 1.10 |
| 5 | *The Godfather* | 0.97 |
| 6 | *E.T.* | 0.93 |
| 7 | *The Ten Commandments* | 0.81 |
| 8 | *The Exorcist* | 0.80 |
| 9 | *The Empire Strikes Back* | 0.74 |
| 10 | *The Sting* | 0.73 |

corders, cable TV, and movie channels are stiff competition for what a lot of people see as the hassles of going out to a movie (babysitters, parking, cost, and so on). So, even though population has increased considerably since the 1930s, the potential audience for a theatrical film is probably a small fraction of what it was in 1939 for *Gone with the Wind*. Not only is the potential audience smaller, but the number of times a person attends a movie in a year is down substantially from what it was before the advent of such a variety of forms of in-home entertainment. Movies like *E.T.* and the *Star Wars* series got people out despite these problems (as evidenced by their high-gross receipts), and they should get credit for having the ability to accomplish this, even though they are not the top four movies on the adjusted lists presented here. Furthermore, the older movies have had the advantage of re-releases to add to their gross receipts, while the newer ones have not.

So, while the lists are an entertaining way of looking at successful movies over the past 45 years, they are by no means totally accurate. These lists provide an alternative way of viewing *Variety*'s list, but none of the listings is definitive.

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(continued from p. 3)

Between 1973 and 1983, real GNP increased 20.2 percent with the largest increase taking place during the Carter presidency (13.6 percent). (See Charts 8, 9, and 10.) Real GNP grew at its lowest rate during the Nixon-Ford administration (3.5 percent), while the Reagan administration recorded GNP growth of 4.0 percent. Gross Private Domestic Investment, usually the most volatile component of GNP, increased at an average rate of 0.16 percent per year between 1973 and 1983, with a real investment decrease of 15.2 percent between 1973 and 1976, and real investment increases of 13.0 percent between 1976 and 1980, and 6.0 percent from 1980 until the end of last year. During this same eleven-year span, real consumption expenditures grew at an average rate of 2.7 percent per year, with the slowest gain in real personal consumption expenditures (7.2 percent) occurring during the period 1973–1976. Finally, government expenditures grew at an average rate of 4.8 percent per year between 1973 and 1983, with government expenditures growing at rates of 4.7 percent, 7.2 percent, and 2.7 percent for the periods 1973–1976, 1976–1980, and 1980–1983, respectively.

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## ILLINOIS BUSINESS INDEXES

| | Percent Change Sept 1983–Sept 1984 | Sept 1984 | Aug 1984 | July 1984 | June 1984 | Sept 1983 | Aug 1983 |
|---|---|---|---|---|---|---|---|
| Coincident indicator (1969=100) | 7.57% | 111.35 | 111.42 | 111.28 | 111.33 | 103.51 | 102.15 |
| Employment-manufacturing (in thousands)[e] | 2.53% | 994.7 | 992.3 | 987.9 | 998.5 | 970.2 | 962.5 |
| Average weekly hours-manufacturing[e] | -0.24% | 41.3 | 40.8 | 40.6 | 41.1 | 41.4 | 40.7 |
| Weekly earnings-manufacturing[e] | 3.10% | $420.02 | $411.26 | $408.84 | $412.23 | $407.38 | $396.83 |
| Help wanted advertising-Chicago (1969=100)[a] | 52.38% | 96 | 102 | 105 | 101 | 63 | 49 |
| Help wanted advertising-St. Louis (1969=100)[a] | 46.34% | 60 | 56 | 62 | 69 | 41 | 43 |
| Retail Sales (in millions)[b] | -2.30% | $4,597 | $5,100 | $4,948 | $5,038 | $4,705 | $4,541 |
| Coal production (in thousands) | 2.32% | 5,341 | 6,605 | 5,111 | 5,560 | 5,220 | 5,593 |
| Petroleum products (in thousands)[e] | -0.37% | 2,450 | 2,534 | 2,470 | 2,352 | 2,459 | 2,541 |
| Vendor performance | -3.33% | 58.0% | 54.0% | 60.0% | 66.0% | 60.0% | 61.0% |
| Building permits (in thousands) | | | | | | | |
| Residential housing units | -17.59% | 2.295 | 2.763 | 3.474 | 3.524 | 2.785 | 2.969 |
| Value of residential housing | -7.07% | $136,727 | $165,638 | $183,564 | $195,876 | $147,134 | $168,043 |
| Value of nonresidential construction | | | | | | | |
| Industrial buildings | 67.33% | $20,697 | $30,370 | $28,933 | $15,453 | $12,369 | $25,603 |
| Office, banks, and professional buildings | -38.32% | $39,102 | $245,290 | $30,190 | $33,893 | $63,398 | $51,894 |
| Stores and other mercantile buildings | -12.89% | $15,696 | $30,171 | $26,013 | $20,959 | $18,019 | $10,297 |
| Other | -8.31% | $3,476 | $3,055 | $3,431 | $3,591 | $5,079 | $5,416 |
| Consumer price index (December 1977=100) | | | | | | | |
| North Central US[c] | 3.67% | - | 169.7 | - | 168.5 | - | 163.7 |
| North Central/population more than 1,250,000[c] | 3.42% | - | 172.3 | - | 171.3 | - | 166.6 |
| North Central/population 385,000 to 1,250,000[c] | 3.64% | - | 168.1 | - | 167.7 | - | 162.2 |
| North Central/population 75,000 to 385,000[c] | 4.39% | - | 166.6 | - | 164.7 | - | 159.6 |
| North Central/population less than 75,000[c] | 3.67% | - | 166.6 | - | 164.8 | - | 160.7 |
| Chicago (1967=100) | 3.99% | 315.1 | 313.4 | 310.8 | 310.0 | 303.0 | 301.6 |
| St. Louis (1967=100) | 3.11% | 311.4 | - | 305.4 | - | 302.0 | |
| | 1984:I | 1983:IV | 1983:III | 1983:II | 1983:I | 1982:IV | |
| Personal income (in millions)[d,e] | 9.33% | $153,752 | $149,354 | $146,943 | $143,159 | $140,630 | $140,320 |
| Per capita personal income[d,e] | 9.33% | $13,386 | $13,003 | $12,793 | $12,464 | $12,244 | $12,238 |

[a]The Conference Board, *Help Wanted Advertising*, Sept. 1984. [b]Latest month projected by BEBR. [c]Percent change between August 1983 and August 1984. [d]Percent change between 1983:I and 1984:I. [e]Recent month is preliminary figure.


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# Illinois Business Review

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## The Chicago World's Fair: 1992

John Rearden, Jr.

Most of us do well to plan for next month or next year. The Illinois General Assembly must be more forward-looking; they will soon have to accept or reject a Chicago World's Fair planned for 1992 to celebrate the 500th anniversary of Christopher Columbus' discovery that the Indians had already discovered America.

### The Difficulty and Risks of Planning the Future

Supporters of the fair have argued that it will bring important benefits to Illinois. The most prominent of these is increased revenue from tourists drawn to Illinois by the Fair.

The Fair will be expensive, however, requiring large outlays for materials, constructions, labor, and so on. Already, to finance the Fair, the state has restored the sales tax on soft drinks and increased the hotel/motel tax one percent. Up to $8.8 million has been authorized to the Chicago World's Fair account for fiscal 1985 alone. Furthermore, resources devoted to the Fair will not be available for other purposes.

Certainly, the taxpayers would not care so much if the benefits of the Fair, once costs are accounted for, exceed those of the other projects available. The difficulty lies in telling whether the Fair will be better than alternative projects.

### New Orleans' Bad Example

Putting on a World's Fair can be risky. The promoter of the 1984 New Orleans World's Fair said, "We could make so much money it will be embarassing." He is now embarassed for other reasons. Instead of the projected 11 million total attendance and $5 million profit, the New Orleans Fair fell 3.8 million short of attendance projections, is left with $100 million in debt, and has filed for bankruptcy. The construction cost of the New Orleans Fair ballooned $25 million over the original budget. Only 42,000 attended on an average day rather than the expected 72,000.

The attendance and revenue estimates for the New Orleans World's Fair were far off, despite feasibility studies. The degree to which the studies missed the mark in New Orleans points out the difficulty of trying to predict the future as well as the importance of doing it well.

### The Chicago Difference

Feasibility studies have already been conducted for the Chicago World's Fair. These studies are necessary because, given the cost of the Fair, failure to obtain the hoped-for benefits would be a financial and economic disaster. Also, the limited attendance and returns at the New Orleans World's Fair may have caused the organizers to be even more cautious.

There are, fortunately, important differences between the planned 1992 Chicago World's Fair and the one in New Orleans. The Chicago Fair will be a "universal class" exposition, expected to attract 54.4 million visitors compared to New Orleans pre-Fair projections of 11 million. Montreal's Expo '67, the last universal class exposition in the Western Hemisphere, drew 50.9 million from a smaller population base. The Chicago Fair, as a universal class exposition, would also have more international participation and exhibits than did the New Orleans Fair.

### Cost-Benefit Analysis

The financing provisions of the bill authorizing the 1992 Chicago World's Fair require a *new* set of independent cost estimates and feasibility studies before 1 June 1985. These studies must include new cost estimates, attendance estimates, job and other benefit projections, estimates of the resulting increased spending in Illinois, and an assessment of the possibility of farming some Fair projects out to private business.

Laventhol and Horwath have been selected to do the feasibility and benefit studies required by the Illinois General Assembly. The choice was made

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quickly — it had to be since the new studies must be ready by June. To get the job, Laventhol and Horwath had to renounce the prospect of any further business from the Authority. Presumably, this requirement will ensure that Laventhol and Horwath have no incentive to slant their report toward the Fair in hopes they will get more work.

One way to assess a prospective project is cost-benefit analysis, which attempts to analyze a project's benefits and costs and reduce them to numbers. Once all the benefits and costs are quantified, cost-benefit analysis attempts to compare the project to other projects that could be pursued to see if the project is the best available. First, the analyst must recognize the important alternatives to the proposed project. In the case of the World's Fair, the money could be spent on other tourist-attracting events or be used for other entirely separate programs, such as reducing the state's debts. If the World's Fair is to be selected, it should be the most attractive among the available options.

### Benefit Analysis

To assess the project's attractiveness, the analyst must determine what the proposed project's benefits are. Clearly, one benefit is the attraction into the state of tourist dollars that would not otherwise be spent here. Of course, some tourist spending would come into Illinois and Chicago whether the World's Fair was there or not. Some of the tourist spending on the Fair simply diverts money that would otherwise have gone into existing attractions; a tourist who would have come to Chicago anyway will simply switch to the World's Fair and away from Chicagofest. Because of this problem of "crowding out" other attractions, some businesses and attractions may actually be hurt by the Fair.

Tourist dollars are clearly a benefit to Illinois when the tourists come from other states, but the question is more complicated when the tourist is from Illinois because the Illinois resident might well have spent his money within Illinois anyway. An Illinois resident benefits an Illinois merchant by his purchases. Consequently, as far as Illinois residents are concerned, the World's Fair may be only taking money from the left pocket and putting it into the right pocket. Whether this is considered an advantage may depend on whether you ask the left pocket or the right pocket. The cost-benefit analyst must have a framework in advance with which to resolve this sort of problem. In the case of the Chicago World's Fair, the analyst might reach different results if his viewpoint is strictly a Chicago one than if his viewpoint considers the state as a whole.

### Long-term Benefits

All the benefits discussed so far will last only as long as the Fair. The Fair may also have more lasting benefits, however. The New Orleans World's Fair was purposely designed to leave behind attractive buildings, rejuvenating a less attractive area of the city. When the benefits of the New Orleans World's Fair are considered, therefore, the benefits these buildings will provide over their lives must be included. Benefits derived in later years must be discounted to reflect the fact that benefits in years to come are not worth as much as those presently available.

The Chicago World's Fair, as presently planned, will not provide obvious long-term benefits such as New Orleans' urban renewal. However, because the Fair will hopefully charm many of those who come into returning to Illinois later, the Chicago World's Fair will be advertising for the state. Consequently, methods that can assess the effectiveness of advertising could help value the long-term advertising benefits.

### The Task Force Estimates of Benefits

The Financial and Legislative Task Force on McCormick Place Expansion, 1992 World's Fair, and Statewide Tourism Expansion has already taken one approach to estimating the benefits of the World's Fair in its report. The Task Force estimated that $2.3 billion that could be directly attributed to the Fair would be spent in the state. Furthermore, because one dollar of spending is spent again, at least partially, by the person who receives it, this direct spending will generate more spending as the money passes from hand to hand. This added spending is called the "multiplier effect," and the Task Force estimated the additional spending generated by the multiplier effect could be $4.9 billion, leading to overall spending of $7.2 billion.

Another benefit is additional tax revenue, estimated at $1.2 billion by the Task Force. The Fair will also create jobs, both at the Fair and through the economic activity generated through the multiplier effect. The Task Force estimated 15,500 jobs would be created in the construction industry, 5,000 in the hospitality industry, and 20,000 at the Fair. When the multiplier is taken into account, the Task Force felt that 209,000 jobs would be created by the Fair.

Of course, to the extent the Fair is paid for by the government, the multiplier effect will be limited because government funds must come from somewhere, and the government portion of the cost of the Fair will be defrayed by new taxes. These taxes may reduce economic activity by taking money out

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of people's hands. The project as a whole will not be as beneficial because of this negative tax effect.

The Fair may also benefit from some other state projects that the Illinois General Assembly approved in August 1984. McCormick Place, the Chicago convention and trade show center, will be expanded to avoid periods in which new conventions and shows cannot start because the old ones are still being taken down. Also since New York, Las Vegas, and Anaheim have planned, or completed, expansion of their convention centers, Chicago does not want to fall behind. However, the expansion may also aid the Fair. The Task Force felt that McCormick Place could display Illinois exhibits that could become part of the Illinois pavilion at the Fair.

The General Assembly also increased spending on advertising and promotion of tourism. This could help the Fair by bringing in more attendees; the Fair, in turn, will make promoting Illinois easier by providing an attraction to draw tourists to Illinois.

Promotion can be crucial to the success of such an exposition. New Orleans' problems with attendance have been attributed by some to an advertising campaign that was too small and poorly done. Of course, the next few years will be too early to begin touting the Fair, but increased spending on promoting Illinois in the short term may create an awareness of Illinois as a potential tourist destination, which would pay off for the Fair in the long run, according to the Task Force.

## Cost Analysis

*Intangible Costs*

The cost-benefit analyst must then determine the costs of the proposed projects, here the World's Fair and alternatives, and reduce those to numbers. Often, costs may be intangible. For instance, one cost of the Chicago World's Fair will be the extra congestion by the lakefront making the travel time longer for Chicagoans working and shopping there. For workers, the extra travel time is clearly a cost because less work gets done due to time lost to travel. However, even for shoppers the extra travel time is a cost because it reduces their enjoyment.

*The Task Force Cost Estimates*

Other costs are more obvious. The Task Force estimated construction costs for the Fair at $497 million, excluding the construction paid for by foreign countries for their pavilions. Operating expenses such as administration, marketing, entertainment, and planning and operation of the site were estimated to be $254 million. The Fair will require an additional $57 million in interest expenses, the Task Force estimated. All these figures are given in 1983 dollars, so inflation will require higher absolute dollar amounts by 1992.

These figures may have to be revised even higher in the wake of the New Orleans World's Fair's inglorious bottom line. Bernard Stone, chairman of the Chicago City Council's Committee on Special Events and the World's Fair, stated recently that he felt cost estimates should be revised upward by as much as 50 to 100 percent. Stone based his opinion in part on a visit to Seville, Spain where the "sister" Fair to Chicago, also celebrating the 500th anniversary of Columbus' discovery of America, is to be held.

*Comparison of Projects*

The final step for the cost-benefit analyst is to combine the benefit and cost figures for each project under consideration in order to provide a basis for comparison. The analyst may use net benefits (benefits minus costs), the cost-benefit ratio (benefits/costs), or an internal rate of return. Each of these methods has its advantages. Whichever method is chosen, the analyst then compares the different projects using the figures produced by that method.

All of these measures are tools for the decision-maker, the Illinois legislature in this case, to assess the different projects. The General Assembly will probably only be voting for or against the Fair, but they will be implicitly or explicitly comparing the Fair with other possible projects based on the June feasibility studies.

The key question is whether the 1992 Chicago World's Fair would bring in enough benefits to make its cost worthwhile. That is a decision the Illinois legislature must make soon; 1992 will be too late.

# REAL ESTATE DEVELOPMENTS
# Is There an Inflation Rate at Which Housing Demand Is Maximized?

**James R. Follain**

The inflationary environment in the United States appears to be undergoing a radical change thus far in the 1980s. Whereas we ended the 1970s and began the 1980s with double-digit inflation, it seems that the problem of runaway inflation is largely under control. A prolonged period of low to moderate inflation is possible. The question is how this will affect the market for owner-occupied housing. This article argues that the move to moderate inflation will help, as long as it does not go too far.

Although the best rate of inflation is difficult to pinpoint exactly and is a function of a variety of factors including the tax situation of the individual homebuyer, it seems that a moderate inflation rate of 5 to 8 percent is an ideal one for owner-occupied housing. At higher rates of inflation, the high nominal interest rates and the associated limitations on debt-carrying capacities of households work to reduce housing demand. At lower rates of inflation, the subsidy to homeownership implicit in the tax system is smaller; thus lower rates of inflation work to reduce housing demand.

## How Inflation Hurts

Two aspects of the inflation process work to reduce housing demand. The first involves inflation's effect upon mortgage interest rates. High rates of inflation for long periods of time generally result in higher mortgage interest rates because lenders charge a higher premium to take into account the fact that the value of money decreases as inflation increases. Experience in the United States indicates that the link between interest rates and inflationary expectations is quite close. In particular, there is much evidence to suggest that a 1-percent increase in the level of anticipated inflation produces a 1-percent increase in the level of all nominal interest rates, including the mortgage rate.

The second relevant aspect of inflation has to do with the behavior of mortgage lenders. An increase in the nominal mortgage rate reduces the amount of money that a lender will loan to a household. Usually, the debt capacity of a household is expressed in terms of the maximum percentage of income that can be devoted to mortgage payments. Currently, the maximum loan payment for which a household can qualify is 28 percent of household income according to most industry standards.

Combining these two aspects reveals the negative effect that inflation can have on housing demand. Higher inflation means higher interest rates, and higher interest rates mean households qualify for smaller loans. Since the size of the mortgage is usually the key determinant of the size of house a consumer will purchase, inflation can serve to decrease housing demand.

Some simple computations, shown in Table 1, indicate the magnitude of the problem. The numbers are based upon the case of a household earning $50,000 per year and facing an interest rate of 5 percent plus the rate of expected inflation (0 through 12) and a rule that limits the mortgage payment to 28 percent of income. The last column, which is the most important, indicates the maximum house value a consumer can purchase at different rates of inflation. This value equals the maximum loan available to the homebuyer plus a $20,000 downpayment.

There are ways of reducing the negative effect inflation can have on housing demand, but none works for all people all of the time. People borrow from parents, take second mortgages, obtain graduated-payment mortgages, and save more in order to circumvent lender restrictions. Indeed, lender practices also change as evidenced by the recent increase in the industry standard for the maximum loan payment from 25 percent to its current 28 percent of household income. While these attempts do alter the magnitude of the negative effect of inflation on housing demand, they do not alter the qualitative conclusion — the higher the rate of anticipated inflation, the lower will be the value of a house a person can buy given existing lender practices.

## How Inflation Helps

The beneficial effects that inflation can have on housing demand are more subtle but just as real.

Table 1

How Loan Size Restrictions Hurt Housing Demand as Inflation Increases[a]

| Inflation Rate | Interest Rate | Mortgage Payment | Maximum Loan Value | Maximum House Value |
|---|---|---|---|---|
| 0 | 5 | 14,000 | 280,000 | 300,000 |
| 3 | 8 | 14,000 | 175,000 | 195,000 |
| 6 | 11 | 14,000 | 127,275 | 147,275 |
| 9 | 14 | 14,000 | 100,000 | 120,000 |
| 12 | 17 | 14,000 | 82,350 | 102,350 |

[a] Based upon a household with a $50,000 income and $20,000 available for a downpayment. It is assumed that mortgage interest payments in the first year equal 28 percent of household income.

They stem from the treatment of owner-occupied housing in the US income tax system. In particular, the effective exemption of capital gains from taxation and the deductibility of nominal mortgage interest payments from taxable income produce a situation in which an increase in the expected inflation rate leads to a decrease in the real after-tax cost of housing (UC). A reduction in this measure of housing costs leads to an increase in the desired demand for housing.

The key to this argument is the effect that inflation has upon UC. The link is demonstrated by computing UC for two different inflationary environments. The first has a zero rate of inflation and a nominal mortgage rate of 5 percent, while the second has a 6-percent rate of inflation and an 11-percent nominal mortgage rate. In Table 2 UC is calculated for both cases. A consumer is assumed to buy and hold a house for one year (ignoring all transactions costs such as broker fees and points). Also assume the person is buying a $120,000 home with a $20,000 downpayment and a $100,000 mortgage. In the first situation UC equals $6,010, while it equals only $2,060 in the second situation. Thus, inflation reduces the real after-tax cost of housing under existing tax laws, as long as inflation affects interest rates one for one.

Given that an increase in inflation works to reduce the cost of owner-occupied housing, we would expect an increase in inflation to increase the demand for housing. The question is by how much. Fortunately, economists have put extensive effort into estimating the demand for housing and how it changes as the price of housing changes. The consensus is that the price elasticity of the demand for housing is about −.8. This means, for example, that a 10-percent decrease in the cost of housing leads to an 8-percent increase in the demand for housing. To compute how an increase in inflation affects housing demand, one simply computes the value of UC for each level of inflation and uses the price elasticity estimate to calculate the increase in housing demand at each change in inflation.

Table 3 contains such calculations for the case in which a household buys a $100,000 house in the absence of inflation. This, too, is consistent with empirical work suggesting that households purchase housing equaling about twice household income during periods of low inflation. Column 1 indicates the inflation rate, column 2 the cost of housing per dollar of housing, and column 3 the value of housing desired by the household if no lender restrictions exist.

The effect of inflation is that UC declines by about 20–25 percent per 3-percentage-point increase in inflation. Housing demand increases by 16–20 percent for the same change. For households in higher tax brackets, the effect is larger, while it is smaller for households in lower tax brackets and for those who do not itemize deductions. This link between housing demand and inflation has been cited by many economists as a reason for the surge in housing demand and housing prices in the late 1970s.

## Combining the Two Effects

Two effects of inflation on housing demand have been identified. One reduces demand and the other increases it. The point of this article is that there is an inflation rate at which, or at least a range within which, housing demand is greatest. Demand is maximized at the point at which desired housing demand equals the amount permitted by lenders. Beyond this point, demand declines because the level of housing demand permitted by lenders declines. Prior to this point demand is less because the tax subsidy is less.

Table 2

The Real After-Tax Cost of Owner-Occupied Housing

| | | |
|---|---|---|
| 1. Annual Inflation Rate | 0 | 6 |
| 2. Mortgage Interest Rate | 5 | 10 |
| 3. Loan Size | 100,000 | 100,000 |
| 4. Down Payment | 20,000 | 20,000 |
| 5. Mortgage Payment | 5,000 | 10,000 |
| 6. Property Tax | 2,400 | 2,400 |
| 7. Maintenance | 1,200 | 1,200 |
| 8. Tax Savings[a] | 2,590 | 4,340 |
| 9. Capital Gains | 0 | 7,200 |
| Real after-tax cost[b] | 6,010 | 2,060 |

[a] Tax savings equal the marginal tax rate (assumed to be .35) times the sum of interest payments and property tax payments.
[b] This equals rows 5 + 6 + 7 − 8 − 9.

Table 3

How Tax Benefits to Homeownership Increase Desired Housing Demand

| Expected Inflation Rate | Annual Real After-Tax Cost of Housing Per Dollar of Housing (UC)[a] (cents) | Desired Housing Demand ($H_D$) (Dollars)[b] |
|---|---|---|
| 0 | 5.55 | 100,000 |
| 3 | 4.50 | 116,050 |
| 6 | 3.45 | 140,718 |
| 9 | 2.40 | 181,572 |
| 12 | 1.35 | 265,148 |

$UC = (1 - t)(r + \pi + pt) + m - \pi$

[a] *Where* $t$ is the marginal tax rate of the household, assumed to be .25; $r$ is the real interest rate, assumed to be .05; $\pi$ is the expected inflation rate (column 1); $pt$ is the property tax rate, assumed to be .02; and, $m$ is the maintenance rate, assumed to be .01.
[b] This column is computed assuming that $H_D$ equals $100,000 at zero inflation and increases by 8 percent for each 10-percent decline in the cost of housing. More precisely, $H_D$ at 3-percent inflation equals ([log 4.50 - log 5.55] .8 + 1) $100,000. The other numbers are similarly computed.

The Chart makes this point more clear. The line *AB* represents the maximum house value a consumer can purchase at different expected inflation rates. Data from Table 1 are used. *AB* declines because lender limits on loan size decrease as inflation increases. The line *CD* represents the level of desired housing demand at different expected inflation rates. It increases because the tax benefits to home ownership increase with inflation. Actual housing demand equals desired housing demand if desired housing demand is less than the amount dictated by lender restrictions. If desired housing demand exceeds the amount that can be realized given lender restrictions, then the actual housing demand equals the maximum allowable demand. Therefore, actual housing demand is represented in the Chart as the lesser of lines *AB* and *CD*; thus actual housing demand equals *CEB*.

As it is drawn, the optimum inflation rate is about 6 percent, because at this rate actual demand is greatest. This number can be higher or lower depending on how the lines *AB* and *CD* are positioned. Those who can bypass to some extent the loan limits have demand maximized at a higher inflation rate. Those with a higher marginal tax rate, all else equal, realize maximimum demand at a lower inflation rate. Another feature to note is that the maximum level of housing demand also depends on household characteristics. Maximum actual housing demand is higher for those who can bypass the loan limits and for those with higher marginal tax rates.

The important question is where the maximum lies for most households. After all, the lines could be drawn to indicate that 10 percent or 0 percent is the optimum rate. Recent simulation work by James Alm and me sheds light on the optimum inflation rate. The work attempts to compute, via mathematical programming methods, actual housing demand for a variety of interest rates, inflation rates, tax rates, income levels, and levels of wealth. Although the exact optimum rate varies according to the household characteristics, the results consistently find the range of 5–8 percent to be optimum. Furthermore, housing demand at that rate is about 25–40 percent higher than at zero inflation or 12–15 percent inflation. This suggests that the Chart is a fairly good representation of our results.

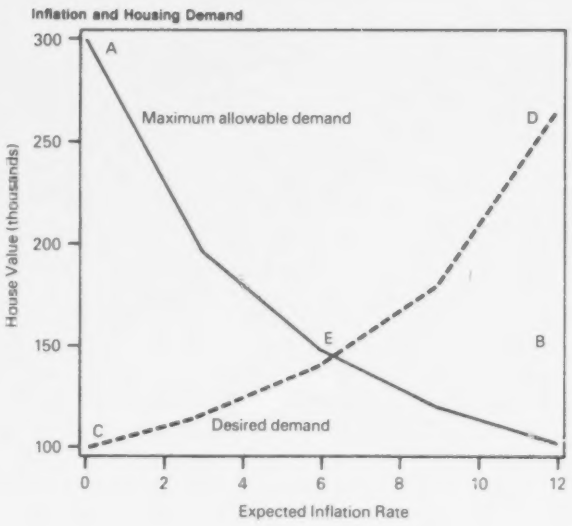
Econometric evidence on this question is mixed. Some models find that the negative effect of inflation dominates for all but the wealthiest households, so that, in fact, inflation even at low levels hurts housing demand; other studies find that inflation increases housing demand through the double-digit range. Unfortunately, the debate in the econometric literature is likely to continue, given the difficulty of estimating inflationary expectations for the population. Given these problems, there is reason to be skeptical of the econometric evidence and to lean towards the Alm-Follain results.

## Forecasts

What does this conclusion suggest about housing demand in the latter part of the 1980s? The answer

Chart

**Inflation and Housing Demand**




depends upon household's inflationary expectations. A recent econometric study of household inflationary expectations by Mike Carliner of the National Association of Home Builders indicates that expectations in 1984 were 5.6 percent, down from double-digit rates that existed between 1977 and 1982. If such expectations continue to hold, then housing demand for the remainder of the 1980s should be strong, all else equal.

Will inflationary expectations remain moderate? Of course, no one knows; but we do know that expectations are, in the long run, closely linked to reality. The key to a forecast of inflationary expectations is the forecast of actual inflation. Again, the news is encouraging. At a recent meeting of a group of economists, the NBER conference board, moderate inflation was forecast for the remainder of the 1980s. Moderate inflation is defined as about 5 percent per year. If this holds, we would expect inflationary expectations to remain around 5 percent also. As this article argues, this is reason to be optimistic about the demand for owner-occupied housing.

Other factors besides inflationary expectations influence housing demand in the future. Movements in real interest rates and demographic forces and the prospect of tax reform are factors that come to mind in the current environment. Consequently, it is important to note that a moderately inflationary environment is not sufficient to guarantee a strong market. Rather, it is argued that, all else equal, moderate inflation is better than either no inflation or rapid inflation.

Finally, attention should be focused on mechanisms available that allow households to circumvent lender restrictions associated with the fixed-payment mortgage. Graduated payment mortgages and the price-level-adjusted mortgage recently introduced by the Department of Housing and Urban Development are two good examples. Indeed, the explosion in the use of adjustable-rate mortgages in 1983–1984, es-

pecially those with first-year discounts, is probably attributable, in part, to households trying to circumvent lender restrictions in fixed-payment mortgages. As long as the current tax system and lender restrictions exist, some consumers will respond to mechanisms that circumvent lender restrictions because, as we have noted, higher inflation increases the desired housing demand of most consumers.

# Jobs Training Partnership Act Funds: An Evaluation of Their Allocation in Illinois

**Raymond Oldakowski, Lauri Marczak, and Ann Geraci**

Throughout the past several decades, federal government transfer funds have become an increasingly important segment of local government revenues. As a result, the way in which these funds are allocated often plays a critical role in determining the fiscal health, and subsequently the social and economic conditions, of the areas that receive them.

The purpose of our research was to examine the allocation of "Jobs Training Partnership Act" (JTPA) funds among the 26 designated service delivery areas (SDAs) of the state of Illinois. While there are numerous subdivisions of JTPA, we will focus on Title IIa, which represents the majority of the discretionary funds available.

We examine several specific questions. First, is the purpose of JTPA stated in a way that allows target groups to be defined; and do allocation formulas include accurate, direct, and surrogate measures of these groups to be generated? Second, does the current allocation formula achieve the above objective, and so result in a reasonably equitable distribution of funds? Third, can any alternate, more accurate, and politically feasible allocation formulas be developed?

## Jobs Training Partnership Act

JTPA (Public Law 97-300) was enacted 13 October 1982. It replaced the Comprehensive Employment and Training Act (CETA), which had been in effect since 1973. The approximate 1984 budget for JTPA within the state of Illinois is in excess of $100 million. A minimum of 70 percent of these funds is utilized for job training. The remainder is appropriated for administrative costs and other services.

The stated purpose of JTPA is to "establish programs to prepare youth and unskilled adults for entry into the labor force and to afford job training to those economically disadvantaged individuals and other individuals facing serious barriers to employment, who are in special need of such training to obtain productive employment."

JTPA Title IIa funds designated for in-state distribution are currently divided into three equal portions, with each allocated on the basis of a different operational measure. The first portion is distributed on the basis of the SDA's share of the state's total population (aged 16 and over) below the poverty level. The second portion is appropriated based on the SDA's share of the state's total number of unemployed persons above the rate of 6.5 percent unemployment. Only SDAs with unemployment rates greater than 6.5 percent (areas of substantial unemployment) are eligible for this one-third of JTPA funds. The final portion is allocated on the basis of the SDA's share of the state's total number of excess unemployed (those unemployed above the rate of 4.5 percent unemployment). Only SDAs with unemployment rates greater than 4.5 percent are eligible for these funds. Funds allocated on the basis of each of these three criteria are then summed to produce the SDA's share of the total state allotment. In Illinois, all SDA's were eligible for each portion of funds when 1982 unemployment and poverty level data are used.

## A Critical Evaluation of the Current Allocation Formula

To evaluate the JTPA allocation formula, we use a framework of analysis proposed by Burchell. It is a hierarchy of six components ranging from general to specific: (A) legislative intent; (B) conceptual indicators; (C) quantifiable variables; (D) variable definitions; (E) variable linkage; and (F) variable standards. Components B, C, D, and E are of major concern to our research.

Conceptual indicators are explicit references to the problem or target groups that the legislation addresses. The stated purpose of JTPA contains four such indicators: youth, others facing serious barriers to employment, unskilled adults, and the economically disadvantaged.

The JTPA allocation formula consists of three quantifiable variables that are implemented as operational definitions of the above conceptual indicators: number of unemployed, excess number of unemployed, and number of persons below the poverty

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The authors wish to thank James Fossett and Geoffrey Hewings for their comments on earlier drafts of this paper.

level. Unfortunately, none of these variables directly measures the four conceptual indicators. For example, "youth" are not specifically represented in unemployment or poverty data. This is not considered a serious problem, however, as a separate title of JTPA is devoted exclusively to youth. Also among those facing serious barriers are convicted criminals, the handicapped, and displaced homemakers.

The conceptual indicators "unskilled adults" and the "economically disadvantaged" are well represented by poverty data. However, unemployment data may not be as accurate for a number of reasons. The primary problem in using unemployment rates is that Bureau of Labor Statistics (BLS) data do not measure the full extent of unemployment. To be officially unemployed , one must first be a member of the labor force. The BLS estimated in 1979 that 5.8 million people who were not working, but who did want employment, were counted as not in the labor force. This figure includes the so-called "discouraged worker." The Department of Labor states that unemployed, low-income, perhaps unskilled, discouraged workers fit exactly the group that JTPA is designed to help, but they are missed by unemployment statistics.

An additional problem with unemployment data is that it excludes underemployed persons, those who work only part-time, but who wish to work full-time. These persons are officially counted among the employed. One estimate made in 1974 suggests a monthly average of three million involuntary part-time workers. Hence, we argue that unemployment data alone do not efficiently measure the JTPA conceptual indicators.

Variable linkage represents the way in which quanitifiable variables are combined and weighted in the allocation formula. Given the problems with unemployment data, we believe that unemployment is weighted too heavily in JTPA allocation (2/3), whereas poverty is not weighted heavily enough (1/3). We therefore propose an alternate variable linkage.

Variable standards establish minimum eligibility requirements for the receipt of funds. JTPA includes two variable standards. The first, excess unemployment, is defined as unemployment over 4.5 percent. It is generally accepted that full employment exists at this rate. We feel that this standard is acceptable, although some economists now suggest higher levels of unemployment as more representative of full employment. The second variable standard, areas of substantial unemployment, are those regions with unemployment rates over 6.5 percent. This standard is arbitrarily set and is, in fact, so low that every SDA in the State meets this requirement. We suggest a more restrictive standard in order to target aid to those areas with the most severe problems.

### Development of an Alternate Formula: Target Groups, Participant Characteristics, and the Case for Poverty Measures

The clientele of job training programs such as CETA have been described as "labor market leftovers," persons with limited skills and experience, victims of discrimination, and residents of poverty areas and declining labor markets. The CETA allocation was criticized for overemphasizing unemployment at the expense of other relevant measures such as family income, number of AFDC recipients, and number of out-of-work and out-of-school youth. Noting that the JTPA allocation formula may well have similar shortcomings, we set out to examine the usefulness of more specific hardship indicators available from the US Census.

Households headed by females is one indicator that could be useful. In Illinois, AFDC has a caseload in which 95 percent of the recipients are from such households. One out of four of these cases is opened due to unemployment. Hence, this variable may well serve as a strong indicator of populations most in need of job training programs.

Another indicator, persons over 25 years of age without a high school diploma, might accurately measure individuals with limited skills, or those facing serious barriers to employment. A survey of welfare mothers, ex-convicts, and drug addicts who had been enrolled in supported work programs found that only 29 percent had earned a high school diploma or its equivalent. This is in contrast to a 63-percent rate among the general US adult population.

Previous research suggests several other measures that might be appropriate in determining the need for job training services. These include resident black population, resident population receiving public aid, percent of population aged 16 and under, and change in unemployment rate. "Black population" and "population receiving public aid" are useful because of their strong relationships with economic need and low personal resources. "Population aged 16 and under" has been suggested as it represents an age cohort that will subsequently be entering the labor force. "Change in the unemployment rate" may be helpful in indicating areas facing economic stagnation or decline.

In order to determine the responsiveness of both poverty and unemployment to these factors, simple correlation coefficients were ascertained utilizing Illinois data (see Table 1). These coefficients indicate that the poverty and unemployment measures correlate highly and significantly with all of the possible alternative variables. Poverty demonstrates a stronger relationship with population aged 16 and under and population receiving public aid than does unemployment. Conversely, unemployment is more highly correlated with change in unemployment rate, population without a high school education, black population, and households headed by women. However, the differences between coefficients is not significant. Thus, there is no empirical support to suggest that either measure is better or worse than the other.

We still have reservations regarding the heavy weighting given to unemployment in the existing allocation formula. Looking at the quarterly summary of CETA participants for the Champaign area, our reservations may well be justified. Out of 690 partic-

Table 1

Simple Correlation Coefficients of Alternative Variables and Poverty and Unemployment

| | Poverty | Unemployment |
|---|---|---|
| Change in Unemployment | .972 | .990 |
| No HS Education | .957 | .980 |
| Aid Recipients | .995 | .977 |
| Aged 16 and Under | .877 | .873 |
| Black Population | .924 | .940 |
| Female Headed HH | .971 | .984 |

ipants during a nine-month period in 1982, we found that 689 had incomes below the poverty level. Moreover, of the 590 participants who stated that they were unemployed at the time of entry, only 64 had filed for unemployment insurance. This information, coupled with support gained from a reading of other studies in the field suggests that an ideal formula for JTPA would weight poverty and unemployment statistics equally. Hence, our alternative is to distribute:

> 50% of the funds on the basis of the SDAs share of the state's total number of persons at or below the poverty level; 25% of the funds on the basis of the SDAs share of the state's total number of excess unemployed persons (the number of unemployed above 4.5%); 25% of the funds on the basis of the relative number of unemployed individuals residing in areas of substantial unemployment, with substantial unemployment areas defined as SDAs with unemployment rates above the statewide average.

In addition to the change in variable weighting, it should be noted that our alternative allocation formula also includes a redefinition of areas of substantial employment. It is believed that the currently used rate (6.5 percent unemployment) is too low. This is illustrated by the fact that every SDA in Illinois qualifies for this portion of JTPA funds. Our redefinition allows for a more flexible measure and also promotes targeting. SDAs above the statewide unemployment rate certainly must be considered as areas with declining labor markets; and as such they may be in special need of job training programs, perhaps with an emphasis on "retraining" older workers whose jobs are endangered due to changes in technology.

## A Comparison of the Current and Alternate Funding Formulas

In order to compare the current and alternate allocation formulas, a simulated distribution of the 1984 Illinois JTPA budget was performed. The amounts allocated by each formula correlate highly and significantly (r=.958). However an examination of the allocations of individual SDAs reveals several significant changes (see Table 2).

Extreme decreases in funding are incurred by SDAs 1, 2, 19, and 20. The first two SDAs, consisting of Lake and McHenry counties, lose funding primarily because of the increased weighting of poverty in the alternate allocation formula. Lake and McHenry counties have two of the lowest poverty rates in the state (4.2 and 4.9 percent, respectively). SDAs 19 and 20 lose funding as a result of their low unemployment rates. Both SDAs have unemployment only slightly above the state average, hence their funding as areas of substantial and excess unemployment is relatively low.

SDAs 3, 7, and 11 experience significant increases in funding utilizing the alternate allocation formula. In the case of SDAs 3 and 11, the increase is a result of the targeting of one-fourth of the JTPA funds to areas with unemployment rates above the statewide average. These SDAs, which include the cities of Rockford and Kankakee, represent large shares of the state's unemployed persons residing in areas of substantial unemployment. Whereas SDA 7 (South Cook County) also has high unemployment, the increased weighting of poverty in the alternate formula is the primary reason for its increased funding.

## Discussion

In times of ever tightening budgets, limited resources, and fiscal crisis, equitable allocation of government funds is especially important. If policymakers view allocation by formula as an objective tool with which they can distribute federal funds, they need to recognize the limitations of such a mechanism. For government programs with such broad goals and nebulous target groups as JTPA, equitable allocation by formula can be a monumental task. Imperfect data sources, which are at best crude measures of the target populations, and geographic variation among recipient areas should be taken into consideration.

The weighting of formula variables in most cases is largely subjective, and in the JTPA formula, the heavy weighting of unemployment at the expense of the poverty measure has been questioned. As was shown, equalizing the importance of poverty and unemployment increases funding to areas that (ac-

Table 2

SDAs Experiencing 25% Change or More in Funding Due to Alternate Allocation Formula

| SDA | Areas Encompassed | Change: Current to Alternate Formula |
|---|---|---|
| 1 | Lake Co. | Decrease |
| 2 | McHenry Co. | Decrease |
| 19 | Dewitt, Macon Co. | Decrease |
| 20 | Cass, Christian, Logan Menard, Sangamon Co. | Decrease |
| 3 | Boone, Winnebago Co. | Increase |
| 7 | South Cook Co. | Increase |
| 11 | Grundy, Kankakee, Livingston Co. | Increase |

cording to common standards) are more in need of jobs training funds. If targeting funds to problem areas is a primary objective of federal assistance, policymakers must be more aware of the targeting potential that lies within variable weights. This weighting method also allows the variables to serve as safety nets, catching those persons in need of job training missed by the other. However, weighting schemes need to be continuously examined for hidden vested regional or political interests and any unintended adverse effects they may create among local public and private economic activities.

# Federal Government Expenditures in Illinois

**Carolyn Woj**

Illinois trails the nation in terms of federal spending. Per capita total direct expenditures or obligations were $3.05 nationally in 1983. The corresponding figure for Illinois was $2.54.

Some caution, however, must be applied in evaluating these statistics. The figures do not provide an accurate account of the exact geographic location where federal spending occurs. For example, geographic data on grants represents awards to the initial, rather than the final, recipient. The state government is the initial recipient for many grants, even though these grants are subsequently distributed throughout the state. Thus grant data for Sangamon County (location of the state capital) is overstated, while grant data on the rest of the state is understated. Subcontracting also distorts the procurement figures. A firm in Illinois might get a federal contract and subcontract the majority of the job to firms outside the state. If Illinois firms subcontract more to firms in other states than firms in other states subcontract to firms in Illinois, the impact of federal spending on the Illinois economy will be overstated.

Although one must keep in mind that there are measurement problems associated with this data, an examination of the various components of federal spending in Illinois can be useful. As the Table indicates, the main cause of the low level of federal spending in Illinois is the relatively low level of federal defense expenditures in the state. Per capita defense expenditures in Illinois were approximately one third of the national average. Excluding this catagory of expenditures, Illinois fared better than the nation as a whole. It received $2.28 per capita from nondefense-related agencies. The national figure for spending in this catagory was $2.20.

Within the state, the five counties receiving the largest amount of per capita federal expenditures were Rock Island, Carroll, Macon, Saint Clair, and Champaign. All of these counties obtained per capita defense expenditures above the national average. Rock Island also received total per capita federal expenditures in excess of the national average. The Rock Island arsenal brought in a flow of federal dollars. Of Rock Island county's per capita federal expenditures, 53 percent were defense department related. In contrast, Carroll county received 70 percent of its share of federal expenditures in nondefense areas. The depressed condition of the local economy led to a high level of direct payments to individuals. This category accounted for nearly 60 percent of the total per capita federal expenditures in the county. Macon and Saint Clair counties also obtained the majority of their funds from direct payments to individuals. Champaign county acquired a large percent of its funds from federal grants. The area's share of per capita federal expenditures related to grants was 16 percent, more than double that of any of the other five leading counties due to the presence of the University of Illinois.

Excluding the top five counties, the remainder of the state obtained 92 percent of its per capita direct federal expenditures in nondefense areas. It fared better than the nation as a whole in terms of nondefense spending. While national per capita federal expenditures in nondefense-related categories was $2.20, the figure for the rest of the state was $2.33. Of the total per capita federal expenditures 63 percent were related to direct payments to individuals. Although the state lags in defense department expenditures, it receives an equal or greater amount of funds in most other areas.

One question that comes to mind when considering Illinois' position relative to the other states is whether it is necessarily beneficial to have per capita federal spending equalized across the states. If one state has firms that are more efficient producers of defense materials, should we grant these firms the contract? Another option would be to award the job to relatively inefficient producers in other states. Similarly, if one state is worse off than the others, should it receive more or the same amount of funds as the better-off states? These questions are not easily answered. There is a trade-off between efficiency and equality. Equality of federal spending among the states may be a desired goal, but the equality will necessarily entail a decrease in economic efficiency resulting in a net decrease of social welfare (as measured by economic efficiency).

Table

Per Capita Federal Government Expenditures or Obligations

| | Five Top Illinois Counties | | | | | Rest of State | | |
|---|---|---|---|---|---|---|---|---|
| | Rock Island | Carroll | Macon | St. Clair | Champaign | State | Total | US |
| Total Direct Expenditures or Obligations: | | | | | | | | |
| Total | $3.25 | $2.84 | $2.68 | $2.67 | $2.57 | $2.52 | $2.54 | $3.05 |
| Defense Dept. | $1.71 | $ .86 | $1.13 | $1.17 | $1.09 | $ .19 | $ .26 | $ .85 |
| Other Agencies | $1.54 | $1.98 | $1.54 | $1.50 | $1.48 | $2.33 | $2.28 | $2.20 |
| Grant Awards | $ .06 | $ .04 | $ .18 | $ .08 | $ .41 | $ .44 | $ .42 | $ .45 |
| Salaries and Wages: | | | | | | | | |
| Total | $1.56 | $ .76 | $ .12 | $ .96 | $ .86 | $ .25 | $ .29 | $ .45 |
| Defense Dept. | $1.44 | $ .69 | $ .03 | $ .89 | $ .72 | $ .06 | $ .11 | $ .23 |
| Direct Payments for Individuals: | | | | | | | | |
| Total | $1.37 | $1.67 | $1.26 | $1.40 | $ .90 | $1.60 | $1.58 | $1.42 |
| Retirement and Disability | $1.05 | $1.27 | $ .95 | $1.10 | $ .68 | $ .89 | $ .90 | $1.01 |
| All Other | $ .32 | $ .40 | $ .32 | $ .30 | $ .22 | $ .71 | $ .68 | $ .41 |
| Procurement Contract Awards: | | | | | | | | |
| Total | $ .24 | $ .17 | $1.09 | $ .22 | $ .37 | $ .18 | $ .19 | $ .69 |
| Defense Dept. | $ .24 | $ .14 | $1.08 | $ .18 | $ .28 | $ .11 | $ .13 | $ .55 |
| Other Federal Expenditures or Obligations | $ .02 | $ .21 | $ .02 | $ .01 | $ .03 | $ .06 | $ .06 | $ .05 |
| Other Federal Assistance: | | | | | | | | |
| Direct Loans | $ .03 | $ .54 | $ .06 | $ .02 | $ .09 | $ .08 | $ .08 | $ .07 |
| Guaranteed Loans and Insurance | $ .30 | $ .16 | $6.50 | $ .20 | $ .14 | $ .30 | $ .37 | $ .67 |


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## ILLINOIS BUSINESS INDEXES

| | Percent Change Nov 1983–Nov 1984 | Nov 1984 | Oct 1984 | Sept 1984 | Aug 1984 | Nov 1983 | Oct 1983 |
|---|---|---|---|---|---|---|---|
| | 12.52 | 109.71 | 109.41 | 111.35 | 111.42 | 97.50 | 96.90 |
| Employment-manufacturing (in thousands)[e] | -0.10 | 984.4 | 989.6 | 994.7 | 992.3 | 985.4 | 986.6 |
| Average weekly hours-manufacturing[e] | -0.24 | 40.9 | 40.7 | 41.3 | 40.8 | 41.0 | 41.1 |
| Weekly earnings-manufacturing[e] | 3.61 | $418.0 | $413.9 | $420.02 | $411.26 | $403.44 | $404.01 |
| Help wanted advertising-Chicago (1969=100)[a] | 23.75 | 99 | 100 | 96 | 102 | 80 | 80 |
| Help wanted advertising-St. Louis (1969=100)[a] | 30.61 | 64 | 59 | 60 | 56 | 49 | 47 |
| Retail Sales (in millions)[b] | 6.05 | $4,836 | $5,138 | $4,794 | $5,100 | $4,560 | $4,784 |
| Coal production (in thousands) | -5.87 | 4,633 | 5,633 | 5,341 | 6,605 | 4,922 | 5,532 |
| Petroleum products (in thousands)[e] | 1.54 | 2,500 | 2,590 | 2,450 | 2,534 | 2,462 | 2,449 |
| Vendor performance | -15.25 | 50.0% | 52.0% | 58.0% | 54.0% | 59.0% | 64.0% |
| Building permits (in thousands) | | | | | | | |
| Residential housing units | 9.86 | 2.274 | 2.813 | 2.295 | 2.763 | 2.070 | 3.185 |
| Value of residential housing | 11.50 | $129,223 | $151,004 | $136,727 | $165,638 | $115,893 | $175,651 |
| Value of nonresidential construction | | | | | | | |
| Industrial buildings | -54.46 | $14,752 | $15,685 | $20,697 | $30,370 | $32,396 | $15,570 |
| Office, banks, and professional buildings | -26.52 | $35,482 | $43,040 | $39,102 | $245,290 | $48,288 | $47,954 |
| Stores and other mercantile buildings | -47.13 | $15,777 | $24,621 | $15,696 | $30,171 | $29,839 | $23,517 |
| Other | -42.21 | $2,719 | $4,577 | $3,476 | $3,055 | $4,705 | $3,619 |
| Consumer price index (December 1977=100) | | | | | | | |
| North Central US[c] | 4.25 | – | 171.6 | – | 169.7 | – | 164.6 |
| North Central/population more than 1,250,000[c] | 3.65 | – | 173.4 | – | 172.3 | – | 167.3 |
| North Central/population 385,000 to 1,250,000[c] | 3.87 | – | 168.9 | – | 168.1 | – | 162.6 |
| North Central/population 75,000 to 385,000[c] | 3.79 | – | 167.2 | – | 166.6 | – | 161.1 |
| North Central/population less than 75,000[c] | 3.33 | – | 167.5 | – | 166.6 | – | 162.1 |
| Chicago (1967=100) | 3.29 | 313.9 | 314.1 | 315.1 | 313.4 | 303.9 | 302.3 |
| St. Louis (1967=100) | 3.17 | 309.1 | – | 311.4 | – | 299.6 | – |
| | | 1984:II | 1984:I | 1983:IV | 1983:III | 1983:II | 1983:I |
| Personal income (in millions)[d,e] | 8.89 | $155,892 | $153,752 | $149,354 | $146,943 | $143,159 | $140,630 |
| Per capita personal income[d,e] | 8.89 | $13,572 | $13,386 | $13,003 | $12,793 | $12,464 | $12,244 |

[a]The Conference Board, *Help Wanted Advertising*, Nov. 1984. [b]Latest month projected by BEBR. [c]Percent change between October 1983 and October 1984. [d]Percent change between 1983:II and 1984:II. [e]Recent month is preliminary figure.


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# Who's on First

Larry E. White

Baseball has always been a business as well as a game, but the business aspects of it have changed rapidly since the 19th century, particularly in recent years. In the early part of this century, a baseball owner made his living from owning a ball club; today owners are often shipbuilders or former actors. Players were generally given one year contracts and forced to accept the risk of injury ending their careers, while owners relied on the safety net of the reserve clause to keep players from moving to other teams. With the reserve clause all but extinct today, players receive long-term, often guaranteed, contracts to secure the future.

With the sweeping changes in baseball's owner-player relationship, salaries are paid to players at an escalating rate. A recent issue of *Sports Illustrated* reports that there will be 36 players earning a million dollars or more in 1985. High salaries have forced some owners to sell their teams rather than try to compete with lower-paid and lower-quality talent. Players have taken advantage of the high salary offers to obtain long-term contracts, often with deferred payments.

Who is the highest paid player? *Sports Illustrated* cites Mike Schmidt of the Philadelphia Phillies as today's highest paid player, at $2,130,000 for 1985. This, of course, is measured in current dollars. A more interesting question is to ask who has been the highest paid player when price inflation has been taken into account. Even though Schmidt will be paid more dollars than Babe Ruth ever was, the dollars Ruth received could purchase more goods.

Through various books, magazines, and other publications, estimates of baseball players' salaries have been collected for some of the more prominent players. Price level data dating back to the 19th century has also been collected and has been transformed so that all players' salaries can be compared in 1984 dollars. A constant dollar comparison shows that Mike Schmidt is, in fact, still the highest paid. The comparison shows, however, that before 1975, the highest paid was Babe Ruth.

Remember, however, that a survey of this nature is, at best, only an estimate of the truth, and three factors make this clear. First, price indexes that span a long period of time are inherently inconsistent. It is impossible to measure the true purchasing price of the dollar when the basket of goods available is constantly changing in both selection and quality. Second, actual player salaries are confidential and known only to the player himself, the team for whom he plays, and the Internal Revenue Service. (However, in many cases, enough information has been released for sports analysts to make relatively accurate projections of players' salaries.) Finally, there is the matter of taxation. One can only speculate how much high-salaried players have paid in income taxes through the past 115 years. Before 1913, income taxes were unconstituional and the rates since then have varied with income level and time. Today, as many players employ financial advisors, it becomes an even greater speculation to determine how much of a player's salary is paid in taxes. In light of these problems, it is still interesting to pursue a current dollar/constant dollar comparison for baseball salaries since the first game was played.

## History

Professional baseball is generally believed to have begun in 1869, with the Cincinnati Red Stockings going undefeated for 69 games. While baseball statistics are often inaccurate prior to 1900, Allison Danzig and Joe Reichler report the following salaries of the original Cincinnati club: Harry Wright, the captain and centerfielder, $1,200; shortstop George Wright, $1,000; pitcher Asa Brainard, $1,100; Fred Waterman, $1,000; Charles Sweasy, Charles Gould, Douglas Allison, Andrew Leonard, and Calvin McVey,

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$800 each; and substitute Richard Hurley, $600. Salaries probably remained in this range throughout most of the 19th century, increasing slightly as the popularity of the game drew more ticket-purchasing fans to the games. Danzig and Reichler also report that in 1877, top players made $1,500–$2,000 per season, while umpires received only $5 per game.

Gradually, salaries increased, as did the quality of performance. Honus Wagner, an original Hall of Fame member, earned $10,000 in 1907. That year, Ty Cobb earned only $5,500, but by 1914 his salary had nearly tripled to $15,000. Both Wagner in 1907 and Cobb used the only weapon available to players to obtain higher salaries, the threat of holdout. Wagner held out for four games before signing his contract, while Cobb threatened to jump to the Federal Baseball League, which offered him a reported $75,000. Cobb choose the $15,000 and the relative security of the Detroit Tigers.

Then there was Babe Ruth. In 1921, Ruth was probably the highest paid baseball player, earning $20,000 from the New York Yankees. In 1922, his salary jumped to $52,000, more than five times what many of his teammates earned. Rarely before 1975 was a player's salary increased 160 percent. In fact, Ruth made so much money that when he broke training rules in 1925, his manager fined him $5,000. In 1927, Ruth earned $70,000, and in 1930 he earned $80,000. His 1930 salary would not be topped for nearly two decades.

Other players are sometimes regarded as having been paid milestone salaries. Dazzy Vance of the Brooklyn Dodgers became the first $25,000 pitcher in 1930. Later in 1936, Dizzy Dean of the St. Louis Cardinals earned $27,500. In 1938, Lou Gehrig's $43,000 was believed to be the highest, as was Hank Greenberg's $50,000 in 1940. Joe DiMaggio of the Yankees was paid $8,000 as a rookie in the 1930s, but he went on to be the major league's first $100,000 player when he signed in 1949. This was surpassed by the great Ted Williams, who earned $125,000 in 1950. In comparison, Stan Musial received $50,000 in 1950, and Jackie Robinson earned $35,000.

Salaries remained in the $50,000–$100,000 range for outstanding players throughout much of the 1950s and 1960s. Mickey Mantle earned $50,000 in 1956, and Roger Maris earned $75,000 in 1966. By 1972, the highest paid player was Hank Aaron who received $200,000 annually. At the same time, Carl Yastrzemski earned $167,000; Willie Mays earned $165,000; and Roberto Clemente and Bob Gibson earned $150,000 each. In 1974, the highest paid salary in baseball was Dick Allen's $225,000.

The beginning of the end of the reserve clause and "low" salaries occurred in 1970. Star centerfielder Curt Flood of the St. Louis Cardinals, who earned about $100,000 annually, was traded to the Philadelphia Phillies. Flood, however, did not want to play in Philadelphia. With baseball's reserve clause typed into Flood's contract, there did not seem to be anything he could do, except move to Philadelphia or retire. Instead, Flood turned to the courts and sued major league baseball for violating antitrust laws. Flood eventually lost his battle, but the ground work had been laid for dissolving the reserve clause.

In 1975, the reserve clause lost much of its effectiveness when Jim "Catfish" Hunter of the Oakland Athletics was declared a free agent when the Oakland management failed to meet the terms of his contract. Free agency for Hunter meant that he could negotiate a contract with any of the 24 baseball organizations. This is considered the beginning of both skyrocketing salaries and the outrageous reporting of them by the media.

Consider the contract Jim Hunter finally signed with the New York Yankees. Headlines read "Hunter signs for $3.35 million." With his contract for five years, some believed his yearly salary was around $670,000. In fact, his salary was only $100,000 for each of the five years. What happened to the remaining $2.85 million? It was divided as follows: $250,000 in deferred payments at $50,000 per year; $1,500,000 in deferred payments at $100,000 from 1980 to 1994; a $100,000 bonus for signing; a $750,000 life insurance policy, paid at $50,000 for 15 years; a $50,000 life insurance policy for each of his two children; $200,000 in lawyers fees; and a new car each year. All totaled, this was a $3.5 million contract to pitch for the Yankees, but not exactly at $670,000 per year.

Today the Major League Basic Players' Agreement calls for a combination of free agency and binding arbitration to settle contractual disputes between players and owners. After one year of major league experience, a player can file to have an arbitrator decide his salary. Both the player and the owner file a one-year contract salary; and after hearing both sides of the case, the arbitrator decides the salary. This year, Tim Raines of the Montreal Expos was awarded a record $1.2 million in arbitration. After playing a longer specificed time, players are eligible for free agency. Free agents are selected in a reentry draft and can sign with any club that selects them for whatever salary the player can negotiate.

Speculation in today's free agency market can be profitable, or it can become an expensive disaster. If Rick Sutcliffe can repeat his 1984 performance for the Chicago Cubs, his high salary will be worth every

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penny. Given the larger than average attendence in Cincinnati's Riverfront Stadium for Pete Rose's return, the Reds' revenue increase from ticket sales alone can be projected near $360,000 for the first three games against Chicago. This does not include other revenues such as concessions and parking, which could amount to another $100,000. On the other hand, Wayne Garland lost 19 games for the Cleveland Indians in his first season after signing a 10 year contract for $2.15 million, and he later developed arm problems. Atlanta's Bob Horner, who earns $1.5 million, sat out most of last year with a wrist injury. And finally, John Castino, a promising young player for Minnesota, had his career ended with back problems after signing a four year contract worth $2.7 million.

Table

**Players' Salaries in Original and 1984 Dollars**

| Year | Player | Salary (Nominal) ($1000s) | Salary (1984) ($1000s) |
|---|---|---|---|
| 1907 | Honus Wagner | 10.0 | 92.351 |
| 1907 | Ty Cobb | 5.5 | 50.793 |
| 1908 | Christy Mathewson | 6.5 | 62.252 |
| 1910 | Ty Cobb | 10.0 | 85.247 |
| 1914 | Ty Cobb | 15.0 | 132.230 |
| 1914 | Tris Speaker | 18.0 | 158.676 |
| 1921 | Babe Ruth | 20.0 | 123.380 |
| 1922 | Babe Ruth | 52.0 | 323.359 |
| 1922 | Lou Gehrig (bonus) | 1.5 | 9.328 |
| 1922 | Lou Gehrig (for 4 months) | 3.0 | 18.655 |
| 1925 | Babe Ruth (fine) | 5.0 | 29.109 |
| 1927 | Ed Barrow | 25.0 | 157.353 |
| 1927 | Miller Huggins | 37.0 | 232.882 |
| 1927 | Babe Ruth | 70.0 | 440.588 |
| 1927 | Herb Pennock | 17.5 | 110.147 |
| 1927 | Urban Shocker | 13.5 | 84.971 |
| 1927 | Bob Meusel | 13.0 | 81.824 |
| 1927 | Joe Dugan | 12.0 | 75.529 |
| 1927 | Dutch Reutner | 11.0 | 69.235 |
| 1927 | Waite Hoyt | 11.0 | 69.235 |
| 1927 | Bob Shawkey | 10.5 | 66.088 |
| 1927 | Earl Combs | 10.5 | 66.088 |
| 1927 | Tony Lazzeri | 8.0 | 50.353 |
| 1927 | Bennie Bengough | 8.0 | 50.353 |
| 1927 | Lou Gehrig | 8.0 | 50.353 |
| 1927 | Pat Collins | 7.0 | 44.059 |
| 1927 | Mark Koenig | 7.0 | 44.059 |
| 1927 | Ben Paschal | 7.0 | 44.059 |
| 1927 | Myles Thomas | 6.5 | 40.912 |
| 1927 | John Grabowski | 5.5 | 34.618 |
| 1927 | John Gazella | 5.0 | 31.471 |
| 1927 | Joe Girad | 5.0 | 31.471 |
| 1927 | George Pipgrass | 4.5 | 28.324 |
| 1927 | Credic Durst | 4.5 | 28.324 |
| 1927 | Roy Morehart | 4.0 | 25.176 |
| 1927 | Jules Wera | 2.4 | 15.106 |
| 1927 | Wiley More | 2.5 | 15.735 |
| 1927 | New York Yankees | 315.9 | 1988.312 |
| 1930 | Dazzy Vance | 25.0 | 173.935 |
| 1932 | Dizzy Dean | 3.0 | 27.705 |
| 1934 | Dizzy Dean | 7.5 | 60.291 |
| 1935 | Dizzy Dean | 18.5 | 138.996 |
| 1936 | Dizzy Dean | 27.5 | 204.634 |
| 1937 | Joe DiMaggio | 15.0 | 104.596 |
| 1938 | Joe DiMaggio | 25.0 | 191.543 |
| 1938 | Lou Gehrig | 43.0 | 329.454 |
| 1939 | Hank Greenberg | 40.0 | 311.859 |
| 1940 | Hank Greenberg | 50.0 | 383.086 |
| 1941 | Joe DiMaggio | 37.5 | 258.010 |
| 1942 | Joe DiMaggio | 43.8 | 266.712 |
| 1948 | Joe DiMaggio | 70.0 | 262.331 |
| 1949 | Joe DiMaggio | 100.0 | 394.282 |
| 1950 | Ted Williams | 125.0 | 474.175 |
| 1950 | Ralph Kiner | 65.0 | 246.571 |
| 1950 | Lou Boudreau | 65.0 | 246.571 |
| 1950 | Bob Feller | 45.0 | 170.703 |
| 1950 | Jackie Robinson | 35.0 | 132.769 |
| 1956 | Ted Williams (fine) | 5.0 | 17.106 |
| 1956 | Mickey Mantle | 50.0 | 171.058 |
| 1959 | Robin Roberts | 50.0 | 163.660 |
| 1959 | Willie Mays | 80.0 | 261.857 |
| 1966 | Roger Maris | 75.0 | 233.425 |
| 1968 | Curt Flood | 11.0 | 33.300 |
| 1974 | Dick Allen | 224.0 | 434.149 |
| 1975 | Jim Hunter | 100.0 | 177.416 |
| 1976 | Wayne Garland (before free agency) | 23.5 | 39.847 |
| 1976 | Billy Martin | 92.0 | 155.998 |
| 1976 | Jim Hunter | 100.0 | 169.563 |
| 1977 | Wayne Garland (after free agency) | 215.0 | 343.535 |
| 1977 | Larry Hisle (before free agency) | 47.2 | 75.418 |
| 1977 | Lyman Bostock (before free agency) | 20.0 | 31.957 |
| 1977 | Billy Martin | 100.0 | 159.784 |
| 1977 | Jim Hunter | 100.0 | 159.784 |
| 1978 | Larry Hisle (after free agency) | 525.0 | 778.344 |
| 1978 | Lyman Bostock (after free agency) | 450.0 | 667.152 |
| 1978 | Billy Martin | 110.0 | 163.082 |
| 1978 | Jim Hunter | 100.0 | 148.256 |
| 1978 | Dave Parker | 1000.0 | 1482.561 |
| 1978 | Rod Carew | 800.0 | 1186.049 |
| 1978 | Pete Rose | 800.0 | 1186.049 |
| 1978 | Jim Rice | 700.0 | 1037.793 |
| 1979 | Jim Hunter | 100.0 | 131.706 |
| 1981 | Dave Winfield | 1500.0 | 1584.401 |
| 1981 | Fred Lynn | 1200.0 | 1269.121 |
| 1981 | Eddie Murray | 1000.0 | 1057.601 |
| 1981 | Nolan Ryan | 1000.0 | 1057.601 |
| 1981 | Phil Niekro | 1000.0 | 1057.601 |
| 1983 | Gary Carter | 2000.0 | 2057.010 |
| 1983 | George Foster | 1600.0 | 1645.608 |
| 1983 | Dale Murphy | 1600.0 | 1645.608 |
| 1983 | Dave Winfield | 1500.0 | 1542.758 |
| 1983 | Pete Rose | 1300.0 | 1337.057 |
| 1985 | Mike Schmidt | 2130.0 | |
| 1985 | Jim Rice | 2090.0 | |
| 1985 | George Foster | 1950.0 | |
| 1985 | Dave Winfield | 1745.0 | |
| 1985 | Gary Carter | 1728.0 | |

Sources: "Ball Park Figures? Better Believe It", *Sports Illustrated*, 4 March 1985; *World Almanac, 1982*; *World Almanac, 1984*; *The Baseball Catalog*, Dan Schlossberg, 1980; *The History of Baseball*, Allison Danzig and Joe Reichler, 1959; *Historical Statistics of the United States, Colonial Times To 1970*, Bureau of the Census, US Department of Commerce; *Statistical Abstract of the United States*, Bureau of the Census, US Department of Commerce; *American Baseball*, Volume 2, David Quentin Voight, 1970; *The Yankees*, Dave Anderson, Murray Chass, Robert Creamer, and Harold Rosenthal, 1979; and *Detroit Tigers*, Joe Falls, 1975.

It seems unlikely that salaries have reached a peak. Free agency can allow players to negotiate with many teams at once, often creating a bidding war. Arbitration allows one player to compare himself to another to obtain a comparable salary. On top of these reasons, management seems willing and able to pay escalating salaries in search of a World Series championship.

### Salaries in 1984 Dollars

Baseball salaries have skyrocketed, in real terms as well as in nominal, but a marked division can be found in 1975. Before 1975, there were many $300,000 per year contracts in today's prices. Babe Ruth's 1930 contract for $80,000, valued at $556,592 today, might never have been surpassed in real terms had the reserve clause remained intact. Since 1975, many contracts, including at least 36 in 1985, have surpassed Ruth's 1930 salary. However, it is safe to state that no post-1975 salary has yet been negotiated that will serve as a longterm standard of comparison as Ruth's 1930 salary did.

When viewed in 1984 dollars, milestone salaries must be revised. The first million dollar contract was signed in 1978, but was not Dave Parker, baseball's first nominal millionnaire. Instead, it may well have been Jim Rice, Pete Rose, or Rod Carew, who each signed 1978 contracts prior to Parker for $700,000, $800,000, and $800,000 respectively. When inflation is taken into consideration, these three contracts become worth $1,036,693, $1,186,149, and $1,186,149. Parker's million dollar contract translates to $1,482,561, which would place him in the top ten salaries of 1985. The first $100,000 player would be difficult to determine, probably occurring before 1900.

The advent of free agency and the willingness of owners to pay the top dollar has finally allowed top players to capitalize on their near monopoly control on certain talents. Consider Schmidt's salary when compared to the 1984 value of other great players' salaries. The original free agent, Catfish Hunter, received $100,000 per year from 1975 to 1979. This translates to $177,416 for the first year and $131,706 for the last year of the contract. Joe DiMaggio, the first $100,000 player in 1949, received the equivalent of $394,282. Ted Williams' salary of $125,000 in 1950 translates to nearly a half million dollars at $474,174. Babe Ruth's salary of $70,000 with the '27 Yankees would be worth $440,588 today, while his 1930 salary of $80,000, would be worth $556,592, only about a quarter of Schmidt's current salary. Finally, had Ty Cobb jumped to the Federal League in 1915, he would have received the equivalent of $661,150; instead he settled for $132,230.

Four comparisons of current salaries to earlier salaries in 1984 dollars are quite interesting. First, Babe Ruth's 1925 fine of $5,000 for breaking training rules translates to nearly $30,000 today. It is difficult to imagine anyone today being fined $30,000 for violating training rules. Second, Ruth's unheard of salary increase of 160 percent from 1921 to 1922 is small by today's standards and, in real terms, represents only about one-tenth of Schmidt's current salary. Third, Lou Gehrig's signing bonus with the Yankees in 1922 may be the bargain basement deal of all time. The $1,500 he received then is still worth less than $10,000 today. The most amazing is the comparison of the entire 1927 Yankees' salaries with salaries today. In that year, the Yankees paid their entire team a total of $315,000, which is worth $1,988,311 by 1984 standards. That means that a team that included six Hall of Fame members and is considered by many to be the greatest team ever earned fewer real dollars than Mike Schmidt or Jim Rice will in 1985.

### Conclusion

It has been the removal of the reserve clause that has caused baseball salaries to skyrocket, but baseball fans knew this. Before free agency, however, it can be argued that Babe Ruth was the best paid player. The comparison of Ruth's purchasing power to other greats such as Joe DiMaggio, Ted Williams, or Willie Mays is probably even understated here, because Ruth probably paid less in taxes. After free agency, many players who will never be elected to the Hall of Fame earn more in real terms than did Ruth. Free agency has increased not only the price of superstars, but the price of mediocre players as well. For now, Mike Schmidt leads the list of highest paid players. It is probably a safe bet that after the 1985 season ends, he will be replaced by another player whose contract has just expired, or is about to.

# REAL ESTATE DEVELOPMENTS

# The Effects of Mortgage Market Usury Ceilings: Recent Evidence

**Bob Weinstein and Steve Sudhoff**

The history of usury limitations on interest rates is quite long, dating back in formal writings to Aristotle and the Old Testament. Until quite recently, many states had active usury laws that restrained home mortgage interest rates. It has been long recognized that the establishment of a ceiling on interest rates may have effects other than simply reducing the cost of borrowing funds. Numerous studies have found that both theoretically and empirically such usury ceilings generate reductions in the availability of credit, affect the terms under which mortgage loans are made available, and increase closing fees. In addition, the presence of a usury ceiling can reduce the credit availability, especially to riskier borrowers.

In late 1979, a federal law was passed eliminating usury ceilings in all states beginning in 1980. States were then allowed to pass laws that expressly overrode the federal prohibition. Although a few states did act to keep their mortgage market usury ceilings in effect, many did not, resulting in the widespread elimination of usury ceilings in mortgage markets. Consequently, the oportunity now exists to evaluate the impact that these ceiling rates have had on mortgage markets.

The objective of this article is to report the results of our investigation of the impact of usury ceilings upon the cost and availability of home mortgages. A model was presented in 1976 by James Ostas of Bowling Green State University to analyze the relationship between initial fees for mortgage loans, loan-to-price ratio, term-to-maturity for mortgage loans, and total mortgage loan flow, as well as the extent to which equilibrium interest rates exceeded usury ceiling rates for the period 1965–1970. We use this model to examine these same relationships for the 1965–1979 period. A similar model is also used to simulate the mortgage market conditions for 1980–1982 that would have existed if usury ceilings had remained in effect. Simulated market conditions are then compared to observed market conditions, so that the impact of the 1979 federal usury prohibition may be evaluated.

## The Basic Model

The model is designed to estimate the impact of differentials between "equilibrium contract rates" (that is, the mortgage contract rates that would have been estimated to prevail in the absence of usury ceilings) and usury ceiling rates, for those areas for which a binding usury ceiling is present.

*Stage one: Estimation of the contract rate in unconstrained mortgage markets*

An integral component of this model is the identification of those factors that influence the mortgage contract rate and the estimation of the magnitude of the impact of such factors. Four factors are examined in our analysis.

*The 10-year Federal Treasury bond rate.* As the rate of return (the interest rate) on government bonds increases relative to the return on home mortgages, financial institutions should tend to favor investing in government bonds; they would invest in home mortgages if the rate of return (interest rate) on mortgages also increased. Thus, increases (or decreases) in the 10-year Treasury bond rate should be associated with increases (or decreases) in the mortgage contract rate.

*The Federal Home Loan Bank Board advance rate.* This is the interest rate charged by the FHLBB for "advances" to member institutions. For mortgage lenders who are FHLBB member institutions, this rate can represent a major cost of lending funds. As this rate increases in relation to the mortgage contract rate, it should be expected that lenders will be less willing to lend mortgage money at lower rates. Therefore, increases (or decreases) in the FHLBB advance rate should lead to increases (or decreases) in the mortgage contract rate.

*The one-period lagged mortgage contract rate.* The reaction of mortgage markets to changes in the bond rate or advance rate is probably not instantaneous; time may pass while lenders (and borrowers) evaluate new mortgage market conditions. The inclusion of this variable in the model permits the adjustment of mortgage markets to changes in the mortgage market environment to be sluggish. Therefore, a positive relationship should be expected between the lagged contract rate and the "present" contract rate.

*Temporal and geographical factors.* We examine quarterly data for 13 SMSAs. Dummy variables are used to control for variations in the mortgage contract rate due to seasonal factors. Regional dummy variables are also included to account for changes in the contract rate that can be explained purely by differences in mortgage market conditions between SMSAs.

Data points are then selected for which the usury ceiling is not considered to constrain the mortgage contract rate. Observations have been selected for which either a usury ceiling is not present, or the usury ceiling exceeds the mortgage contract rate by at least 100 basis points. Using only these "uncon-

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strained" observations, the value of the observed mortgage contract rate is estimated as a function of the variables noted. This first stage of the statistical work provides us with a statement that describes the behavior of mortgage interest rates when unaffected by usury ceilings.

*Stage two: Estimation of the equilibrium contract rate and of the impact of usury ceilings upon mortgage loan characteristics*

This stage examines mortgage markets where usury ceilings actively constrain mortgage interest rates. Usury ceilings are defined as "constraining" for a particular SMSA in a given quarter if the usury rate exceeds the average mortgage interest rate by no more than 35 basis points. The "equilibrium contract rate" (the mortgage interest rate that would have prevailed in the absence of a usury ceiling) is estimated for each of the observations for which usury ceilings constrain mortgage contract rates.

This procedure identifies two types of mortgage interest rates in usury-constrained mortgage markets: the observed mortgage interest rates, and the equilibrium ("shadow") mortgage interest rates. The impact of usury ceilings can be directly measured by two differentials: the equilibrium rate/usury rate differential and the equilibrium rate/contract rate differential. We examine the impact of these differentials upon four mortgage characteristics.

*Loan closing fees.* As noted previously, mortgage interest rates represent rates of return to mortgage lenders. Loans that are considered by lenders to be relatively riskier (less likely to be paid back, for example) will be made only if lenders are provided with adequate compensation for the assumption of additional risk. Such compensation might be in the form of higher interest rates on riskier loans, but when usury laws prevent lenders from charging higher rates, lenders will seek risk compensation through other mechanisms. Increasing mortgage loan fees and closing charges is one such mechanism. Thus, higher loan closing fees should be associated with higher equilibrium rate/usury (or contract) rate differentials.

*Loan-to-price ratio.* Lenders may also seek risk compensation by simply lending less money to each home buyer, relative to the purchase price for the home. When usury ceilings restrict risk compensation gained through higher interest rates, lenders may assume less risk by decreasing the loan-to-price ratio for mortgages.

*Term to maturity.* The more the equilibrium contract rate exceeds the usury rate, the more likely are lenders to impose restrictions to protect their profits by reducing expected delinquency and default losses. Lenders may reduce these risks by reducing the term to maturity for mortgages.

*Loan flow.* An inverse relationship between loan flow and the equilibrium rate/usury rate differential is expected due to the constraining effect of usury ceilings on the supply of loanable funds. Several researchers have concluded that, even in the presence of mechanisms designed to circumvent usury ceilings, a decline in the flow of loanable funds can be expected.

## Empirical Results

We estimate the model for 1965–1979, as well as for 1971–1979. The model is estimated using data from 12 SMSAs. Overall, the results are similar to those of Ostas. The impact of equilibrium rate/usury rate differentials on loan fees, loan-to-price ratio, term to maturity, and loan flow is found to be congruent with theoretical expectations in nearly every case. The 1965–1979 analyses include 76 constrained observations, while the 1971–1979 analyses include 44 constrained observations. Statistical analysis does indicate some differences in the estimated relationships for 1971–1979 as compared to 1965–1970. However, the fact that the relationships have maintained a very similar structure and direction over such a long time should be noted. Thus, results suggest that the impact of usury ceilings on loan fees, loan-to-price ratio, and the volume of loan flow remained similar in direction, though not perfectly stable, over 1965–1979.

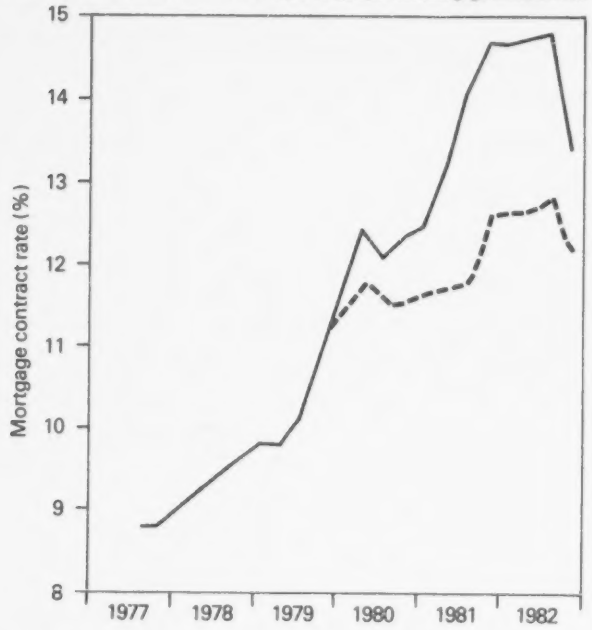
The only variable that does not perform as expected is the term to maturity. The results indicate that the impact of higher equilibrium rate/ usury rate differentials on term to maturity is positive and statistically significant for the 1971–1979 period, while the counter-theoretical result can be explained by the possibility that the estimation procedure has failed to control completely for the impact of increasing interest rates during this period. Increasing interest rates (especially during the late 1970s) may have led borrowers to seek loans with longer terms to maturity.

## Analysis of the Impact of Usury Ceiling Removal

After the beginning of 1980, usury ceilings were eliminated in all areas included in the data base. Of course, the removal of usury ceilings in those areas that previously had high ceilings would be expected to have no impact on contract rates, mortgage terms, or loan flow (Charts 1–4). Eight of the metropolitan areas, however, would have experienced some effective usury constraints during the 1980–1982 period, if their usury ceilings had remained in effect. For those eight areas, analyses are performed to estimate the extent of the impact that ceilings would have had (had they remained in effect) on loan fees, loan-to-price ratio, and loan flow. Initially, observations are selected from the 1980–1982 period for which usury ceilings would have been constraining. The coefficients for the equilibrium rate/contract rate differential, loan-to-price ratio, and loan flow are then multiplied by the equilibrium rate/"predicted" usury rate differential to yield the estimated decrease in loan fees and the estimated increase in loan-to-price ratio and loan flow as the result of the removal of usury ceilings. The predicted contract rates for 1980–1982 (for cities that would have had binding usury ceilings had they remained in effect) are estimated using the results of a model describing the

Chart 1

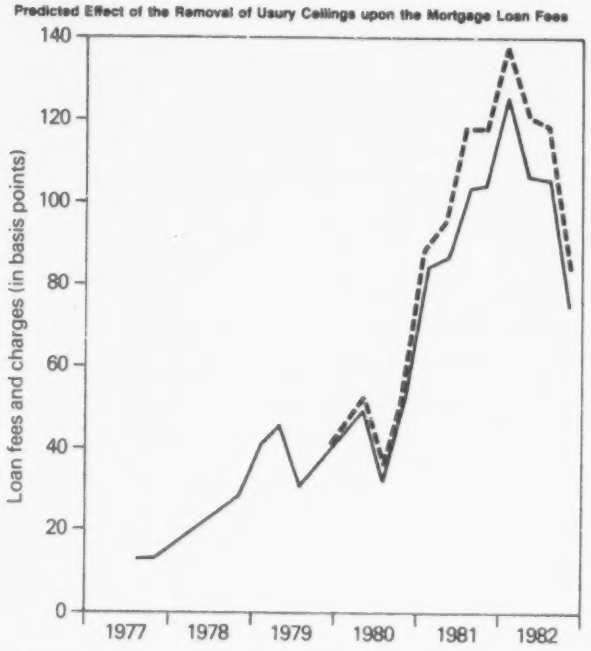
**Predicted Effect of the Removal of Usury Ceilings upon the Mortgage Contract Rate**




Solid line is the observed contract rate; broken line is the predicted contract rate if usury ceilings had remained in effect after 1979.

Chart 2

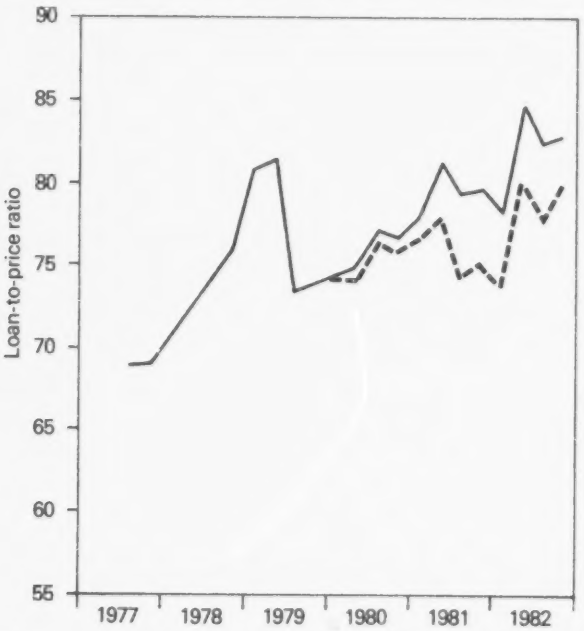
**Predicted Effect of the Removal of Usury Ceilings upon the Mortgage Loan Fees**




Solid line is the observed loan fees and charges; broken line is the predicted loan fees and charges if usury ceilings had remained in effect after 1979.

Chart 3

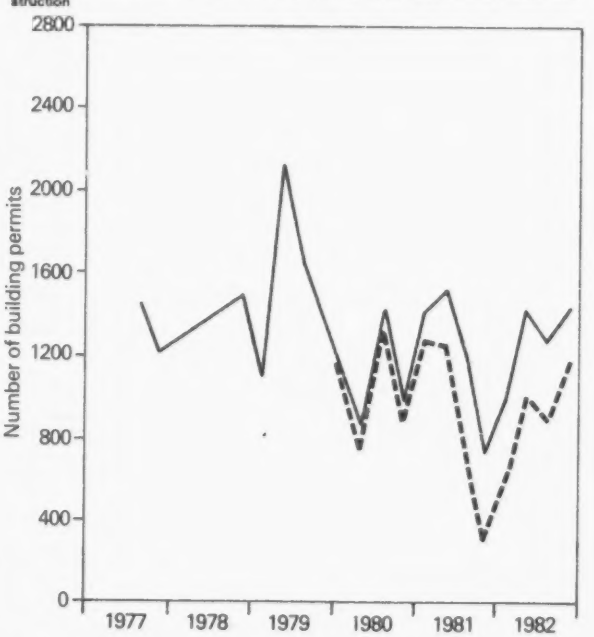
**Predicted Effect of the Removal of Usury Ceilings upon Loan-to-Loan Ratio**




Solid line is the observed loan-to-loan ratio; broken line is the predicted loan-to-price ratio if usury ceilings had remained in effect after 1979.

Chart 4

**Predicted Effect of the Removal of Usury Ceilings upon Single-Family Home Construction**




Solid line is observed number of building permits for single-family homes; broken line is the predicted number of building permits for single-family homes if usury ceilings had remained in effect after 1979.

behavior of contract rates from 1974–1979 for which usury ceilings were binding. The resulting model is then used to obtain estimates by metropolitan area for the 1980–1982 period. Charts 1–4, show the average levels of contract rates, fees, loan-to-price ratios, and building permits (as a proxy for loan flow) for the eight metropolitan areas that would have experienced effective usury ceilings during 1980–1982. These results suggest that the removal of usury ceilings led to average increases in contract rates of 152 basis points per quarter over the 1980–1982 period. If usury ceilings had remained in place, the largest reduction in contract rates would have occurred in the third quarter of 1981.

The results of the model also suggest that the removal of usury ceilings decreased the average level of loan fees across the eight areas. As in the case of contract rates, the greatest reduction in fees that resulted from the removal of usury ceilings occurred in the third quarter of 1981. Loan fees were 13.5 percent lower during this period as compared to the level that our results project would have emerged if ceilings had remained in effect. With regards to the loan-to-price ratio, the removal of usury ceilings resulted in decreases in down payments, with the average loan-to-price ratio increasing by 4 percent during 1980–1982. Thus, the model suggests that the removal of ceilings helped reduce down payment requirements during this period.

Finally, the results suggest that if ceilings had remained in effect, the severe impact of the 1980–1981 recession on building activity would have been intensified in those metropolitan areas that would have experienced binding usury constraints. On average across these eight areas, building permits would have been reduced by 21.6 percent, or approximately 260 per quarter, if ceilings had remained in effect.

### Conclusion

In summary, the results presented in this report suggest that although usury ceilings have historically acted to reduce contract rates for conventional mortgage loans, this beneficial effect has been mitigated through increases in the levels of loan closing fees, increases in down payments, and reductions in the quantity of home mortgages available as conventional loans. There is always some pressure for the reestablishment of binding usury constraints. This pressure generally is strongest during periods of rapidly escalating nominal interest rates. The presence of a systematic impact of binding usury constraints on the flow of mortgage loans suggests that these constraints are economically efficient, reducing employment, reducing profitability of loans, and raising initial fees. These two phenomena suppress the availability of mortgage loans, particularly to those segments of the population with fewer available financial resources. Likewise, decreases in loan-to-price ratios imply the need for greater down payments, thereby reducing mortgage availability to less wealthy segments of the population with less income or, more appropriately, wealth.

Thus, usury ceilings cannot be expected to have an equal impact on all population segments, and within the context of the model reported here they are shown to decrease residential building activity in jurisdictions where usury constraints are binding. The decision to reenact usury ceilings should therefore be made with great care, recognizing that effects other than the reduction in home loan contract rates are likely to emerge whenever usury ceilings act to constrain market interest rates.

# Crowded Skies

**Carolyn Woj**

Most people today would agree that deregulation of the airline industry in 1978 resulted in major benefits to the traveling public. Vigorous competition led to major changes in the industry. Airlines that once competed in terms of service (since price competition was not allowed) now began to compete on price. Many new, low-cost airlines also entered the market. Lower fares and increased options in the quality of service are some of the benefits that the public has gained.

Today, congestion in some major airports is considered a serious problem. In August 1984, 44,372 delays were recorded. A delay is defined as any arrival or departure 15 or more minutes later than scheduled. In recent months six major airports, Hartsfield in Atlanta, Stapleton in Denver, O'Hare in Chicago, and Kennedy, LaGuardia, and Newark in the New York City area, accounted for three-fourths of all delays.

The congestion problem has received serious attention from a number of groups. The Office of Technology Assessment, an analytical agency of Congress, issued a 257-page report on the problem of delays. In addition to the use of new runways and advanced technology to alleviate congestion, they identified two ways to change patterns of airport use. The first consisted of selling aircraft landing fees according to the time of day and level of demand; the second of, limiting the number of flights that can take off or land.

The Federal Aviation Administration (FAA), responsible for monitoring and insuring safe air travel, threatened to allocate the number of landings and take-offs at each of the six major airports if the airlines could not voluntarily agree to allocations. In the words of Donald Engen, administrator of the Federal Aviation Administration, "I don't like the term regulation. Neither the administration nor I as a part of it are trying to regulate anything. Yes, I would step up and direct that certain flights be spread out over a time period. I wouldn't cancel them. That's

not truly regulation. That is increasing safety." Call it what you will, unless the airlines agreed on a plan to allocate and restrict the number of flights during peak hours, they faced direct government intervention. In addition, the Civil Aeronautics Board (CAB), the airline regulatory body scheduled to expire at the end of this year, exempted the airlines from antitrust prosecution during the period in which they met to restrict the number of flights.

Once again, governmental policy intended to benefit the public may actually have the opposite result. The means taken to alleviate the congestion at major airports may create additional problems. Forcing the airlines to set market share and restrict the number of flights during peak hours is not the optimal way to solve the congestion problem. An examination of the problem of overbooking will help to illustrate this point.

### A Case in Point: Overbooking

In 1977 overbooking by the airlines was considered a major problem in the airline industry, as congestion is today. At that time many ideas for alleviating the problem were suggested. Some people thought that seats should be allocated on a first to register, first to seat basis. Others thought this system unfair, since often those who were last to register were those most in need of the flight. Another suggestion was to allocate seats on a first to check in, first to obtain a seat basis. This system was criticized because flight delays sometimes prevented passangers from checking in early. Alfred Kahn, Chairman of the CAB from 1977 to 1978, offered a simpler solution: utilize the price system to allocate seats. The method in effect required the airlines to bribe passengers to take a later flight. As he pointed out "Observe the beauty of the result: No one for whom the value of remaining on the flight is greater than the value of the bribe has to give up a seat. And anyone for whom the cost of the time lost waiting for a later flight is less than the value of the bribe happily volunteers."

### Action Taken to Reduce Congestion

In early September the airlines agreed on a tentative plan restricting flights during peak hours at the six major airports. This plan was subsequently approved by the FAA. On 25 October the CAB also gave its consent to the proposal. One of the major aspects of the agreement was to spread the number of flights out more evenly during peak hours. At La Guardia and Kennedy airports the same number of flights will exist during peak hours. The flights will be spread out more evenly. There will be an increase in the number of flights during peak hours at Newark airport. The FAA had sought to limit the number of flights to 68 per hour during peak hours. The number of flights between 8:00 and 9:00 A.M. under the approved plan will be 73. The agreement will expire on 31 May 1985.

Not all of the airlines agreed with this market sharing scheme. The new airlines that entered after deregulation are fearful of this approach to the congestion problem. Donald Burr, chairman of Peoples Express, suggests, "Some older airlines, which fear competition, are using delays as an excuse to get the government to impose regulatory restrictions prohibiting carriers from adding flights." In addition, "While this may temporarily alleviate the delays, it is wrong in principle and could easily lead to increasing regulation throughout the entire system, with the result that new entrant airlines and expanded or creative new services of other airlines would be stifled."

### An Alternative Approach to Easing Congestion

Congestion implies that a shortage of take-off and landing spaces exist during peak hours. Quantity demanded at the prevailing price exceeds quantity supplied. The solution to the problem consists of setting landing fees on the basis of time of day and level of demand (as suggested by the Office of Technology Assessment). This method would imply an increase in the price of landing and take-off spaces during peak hours so as to equilibrate quantity demanded and quantity supplied. The change in the price of landing and take-off fees would increase the plane fare for traveling at peak hours and could result in a decrease in the price of travel at off-peak hours. Only those individuals for whom the value of the flight is greater than or equal to the new price will take these peak hour flights. Others will switch to off-peak hours. In addition, by increasing the price of landing and take-off fees, we will signal airport owners as to the true value of their service. Allowing the price to adjust to equilibrate quantity supplied and quantity demanded would increase the profitability of airports. This, in turn, would provide an increased incentive for more airports to enter in these areas or for existing airports to expand.

Utilizing the price system, rather than artificial quantity restraints, provides the correct incentives for the participants in the congestion problem. In the short run, airlines' cost of operating at peak hours at these airports will increase, leading to an increase in the price of peak hour flights. The increase in the relative price will induce some to travel during off-peak hours. This will result in a decreased number of flights during peak hours. In the long run, there is also additional incentive to open other airports or expand existing airports in the area, further alleviating the congestion problem.

### Concluding Remarks

Congestion during peak hours at major airports is a problem that has received considerable attention by Congress, FAA, CAB, and the airlines. The means taken by these groups to alleviate congestion provides only short-term relief and introduces distortions in the market. An economically efficient way to ease the congestion problem consists of increasing the price of landing and taking off during peak hours. This method provides appropriate incentives to ease the problem in both the short run and long run.

# The Underground Economy

**Carla Tighe**

Recently the size of the government deficit has come under intense scrutiny. Officials have called for spending cuts, freezes in cost-of-living adjustments, "revenue enhancement" programs, and tax simplification in the form of a flat tax as proposed by the Reagan administration. Strangely enough, there is one sector of our economy intertwined with these two issues but largely ignored by most people — the underground economy. Any income-generating activity that is not taxed is part of the underground economy. Its participants range from cement pourers to stock brokers, from prostitutes to physicians. Most estimates of the size of this sector are between 7 to 15 percent of GNP. In other words, roughly $256 to $550 billion should be taxed in 1984 but will not be. Given a $170 billion deficit, clearly the underground economy warrants more attention.

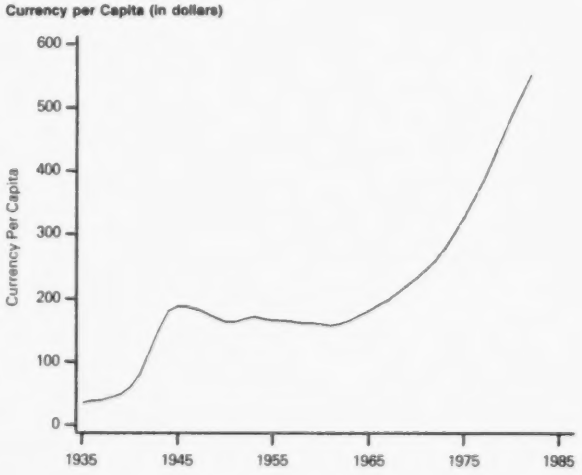
There are two components to this sector. According to economists Carl Simon of Michigan State University and Ann Witte of the University of North Carolina, the first category includes income earned from such illegal activities as prostitution, drug trafficking, illegal gambling, and pornography, and their sum represents about one-third of the underground economy. Short of legalizing these activities, however, there is virtually no way of capturing the lost tax revenue of this part of the economy.

The second component is more worrisome. Two-thirds of untaxed income came from ordinary American citizens doing perfectly legal things but failing to report some or all of their earnings. The most common method of hiding income is by keeping two sets of accounts or simply failing to record certain transactions. As a result, most participants in the legal portion of the underground economy are self-employed people who primarily work for cash. Others report salaried or wage-paying positions to the IRS, but work out of their homes on evenings and weekends — again for cash only. Still others fail to report rental income or interest and dividend payments; however, since the early 1980s the IRS has started cracking down on these practices, and compliance is more common than it once was. Occupations that make noncompliance with tax laws attractive tend to be located in the service sector. It is easier to hide income earned from haircuts or consultations than payments for steel posts. The IRS suspects that much employee participation is condoned or even encouraged by employers. For example, a contractor may be willing to hire an electrician only on weekends. That way the contractor can pay a lower wage and is also spared his share of social security payments and other employer-contributed plans. The electrician then earns completely untaxed income. Furthermore, if the electrician reports the income earned during the week, he or she still qualifies for workmen's compensation, social security, and the like. Both gain from this arrangement.

In general, tax evasion is more likely in very high- and very low-income families. People with average income are frequently more dutiful in reporting every penny of their income. Although it cannot be proven, it is thought that low income families work "off the books" in order to avoid losing public aid or welfare. Under the current progressive tax system, high marginal tax rates applied to upper-income families creates the incentive to cheat. The inflationary '70s increased this incentive by pushing families into higher and higher tax brackets. Since prices on goods and services rose as well as income, people saw themselves paying more tax on income representing the same purchasing power. Therefore, many families decided to go underground. Flat tax programs hope to unearth these people by eliminating the high marginal rates.

Discovering exactly how many people are evading taxes is impossible. However, studies ensuring some degree of anonymity find that 20 to 25 percent of interviewees admit to noncompliance with tax laws. In other words, about one in every five Americans is active in the legal component of the underground economy. Moreover, this component seems to be growing. Although measurement methods vary, many economists have focused on the underground sector's need for cash. In general, high amounts of currency per capita circulating in the economy (that is, amounts exceeding those required to finance recorded transactions) implies a high amount of hidden activity. The accompanying Chart shows the growth in currency per capita since the 1940s. A surge in currency is shown over the years 1940–1945. This reflects the flourishing black market of World War II. Since the mid-1960s, however, there has been unprecedented growth in this country's appetite for currency. In

Chart



1982 alone, there was $553 in circulation for every man, woman, and child in the United States. Economist Vito Tanzi has found that the size of the underground economy more than tripled between 1970 and 1980. Clearly, as long as the incentives to evade taxes remain, the underground economy will thrive. As long as it thrives, it will continue to redistribute income from the middle class to the very poor and the very rich.

Other effects of the underground sector are equally disheartening. Besides the idea of billions of dollars of untaxed income existing in the face of a massive government deficit, some people are concerned about the social impact of the underground economy. There is something disturbing about a system that more and more people feel the need to undermine.

The news is not all bad, however. The government's inability to incorporate the hidden economy has important macroeconomic implications. If many people are working underground, unemployment figures (particularly those for such groups as single mothers or black teenagers) are overestimating the problem. Productivity figures, on the other hand, are underestimated. If, as many economists believe, the underground economy is growing faster than the reported economy, then actual growth in this country is invariably higher than measured growth. Also, higher-than-reported income levels imply higher-than-reported savings levels. As a result, comparisons of the US savings rate and those of other countries lead to overly pessimistic conclusions. Furthermore, underground activity seems to move countercyclically, booming when the measured economy is in a recession and subsiding when times are good. Therefore, the economy is more stable than we suppose, and governmental attempts to cure inflation and unemployment may be stronger than necessary. Lastly, a substantial hidden sector may help to explain the poor performance of economic forecasts.

While the net impact of the underground economy is debatable, one fact remains clear: it will continue to thrive. Even if a truly fair tax system were implemented and inflation were controlled for the rest of this century, working "off the books" would remain a common practice. Studies show that people are more likely to hide their earnings if they suspect others of doing the same. Combine this fact with illegal activities such as pornography, and underground activity seems largely self-sustaining; thus, while we may succeed in slowing its growth, it will probably remain a force to be reckoned with.

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## ILLINOIS BUSINESS INDEXES

| | Percent Change Jan 1984 Jan 1985 | Jan 1985 | Dec 1984 | Nov 1984 | Oct 1984 | Jan 1984 | Dec 1983 |
|---|---|---|---|---|---|---|---|
| Coincident indicator (1969=100) | 13.37 | 116.17 | 112.78 | 109.71 | 109.41 | 102.47 | 101.91 |
| Employment-manufacturing (in thousands)[e] | -0.19 | 966.3 | 971.0 | 983.5 | 989.6 | 968.1 | 969.6 |
| Average weekly hours-manufacturing[e] | -1.46 | 40.4 | 39.1 | 41.0 | 40.7 | 41.0 | 41.8 |
| Weekly earnings-manufacturing[e] | 1.91 | $414.91 | $402.73 | $419.02 | $413.92 | $407.13 | $417.16 |
| Help wanted advertising-Chicago (1969=100)[a] | 11.11 | 90 | 107 | 99 | 100 | 81 | 89 |
| Help wanted advertising-St. Louis (1969=100)[a] | 22.00 | N/A | 61 | 64 | 59 | 55 | 50 |
| Retail Sales (in millions)[b] | 7.10 | $4,677 | $5,994 | $5,196 | $5,138 | $4,367 | $5,755 |
| Coal production (in thousands) | 1.76 | 5,620 | 4,748 | 4,633 | 5,633 | 5,523 | 4,485 |
| Petroleum products (in thousands)[e] | 9.91 | 2,540 | 2,559 | 2,476 | 2,623 | 2,311 | 2,113 |
| Vendor performance | -25.40 | 47.0% | 45.0% | 50.0% | 52.0% | 63.0% | 67.0% |
| Building permits (in thousands) | | | | | | | |
| Residential housing units | -1.71 | 0.917 | 1.086 | 2.274 | 2.813 | 0.933 | 1.990 |
| Value of residential housing | 12.14 | $56,813 | $71,393 | $129,223 | $151,004 | $50,662 | $103,015 |
| Value of nonresidential construction | | | | | | | |
| Industrial buildings | 392.27 | $22,541 | $10,800 | $14,752 | $15,685 | $4,579 | $10,027 |
| Office, banks, and professional buildings | 25.26 | $25,389 | $91,400 | $35,482 | $43,040 | $20,269 | $41,729 |
| Stores and other mercantile buildings | 7.46 | $10,656 | $9,834 | $15,777 | $24,621 | $9,916 | $10,571 |
| Other | 5.12 | $1,293 | $1,219 | $2,719 | $4,577 | $1,230 | $9,209 |
| Consumer price index (December 1977=100) | | | | | | | |
| North Central US[c] | 3.21 | - | 170.4 | - | 170.6 | - | 165.1 |
| North Central/population more than 1,250,000[c] | 3.34 | - | 173.2 | - | 173.4 | - | 167.6 |
| North Central/population 385,000 to 1,250,000[c] | 3.42 | - | 169.2 | - | 168.9 | - | 163.6 |
| North Central/population 75,000 to 385,000[c] | 3.29 | - | 166.4 | - | 167.2 | - | 161.1 |
| North Central/population less than 75,000[c] | 3.39 | - | 167.6 | - | 167.5 | - | 162.1 |
| Chicago (1967=100) | 3.24 | 315.1 | 314.0 | 313.9 | 314.1 | 305.2 | 303.9 |
| St. Louis (1967=100) | 4.57 | 313.3 | - | 309.1 | - | 299.6 | - |
| | | 1984:II | 1984:I | 1983:IV | 1983:III | 1983:II | 1983:I |
| Personal income (in millions)[d,e] | 8.89 | $155,892 | $153,752 | $149,354 | $146,943 | $143,159 | $140,630 |
| Per capita personal income[d,e] | 8.89 | $13,572 | $13,386 | $13,003 | $12,793 | $12,464 | $12,244 |

[a]The Conference Board, *Help Wanted Advertising*, Jan. 1985 [b]Latest month projected by BEBR. [c]Percent change between December 1983 and December 1984. [d]Percent change between 1983:II and 1984:II. [e]Recent month is preliminary figure.

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# An Economic Look at Lotto

David Lee

The Illinois State Lottery has risen from a cloud of controversy and skepticism to become both a major source of revenue for the State of Illinois and a popular form of entertainment for those who play the various lottery games. Since its inception in July 1974, the Illinois State Lottery has netted over $2.7 billion in revenue while paying out more than $1.2 billion in prizes. So popular was the original Lotto game that new games — including the Daily Game, Pick Four, and Instant Winner — have been added. Moreover, interest in the games continues to grow at an astounding rate as the lure of bigger and bigger prizes draws more and more people from across the state of Illinois and from neighboring states into the excitement of playing the lottery.

Why do people enjoy playing? It might be interesting to explore the mechanisms of a specific lottery game (in this case, Lotto) to uncover a rational economic explanation for such great enthusiasm for the lottery.

## How Lotto Works

Lotto is a weekly game in which the player chooses 6 numbers between 1 and 44. To win the grand prize, the player needs to select all six numbers correctly, second place requires five numbers while a third place finish requires that only four of the six numbers be correctly selected. This payoff scheme, along with the associated odds of being a single winner, are presented in the Table.

The payoffs are based on a percentage of total ticket sales for the week. Referring to Chart 1, one can see that 50 percent of total sales is retained as targeted revenue for the state. Of the remaining 50 percent of total sales, 30 percent is designated to be split among all third place winners, 20 percent for dispersement among all second place winners, and the remaining 50 percent, or one-fourth of total sales, is earmarked for the grand prize pool. It is this grand prize pool that has been the focus of much media attention and is, understandably, the objective of all who play Lotto.

Table

Odds of Winning Lotto

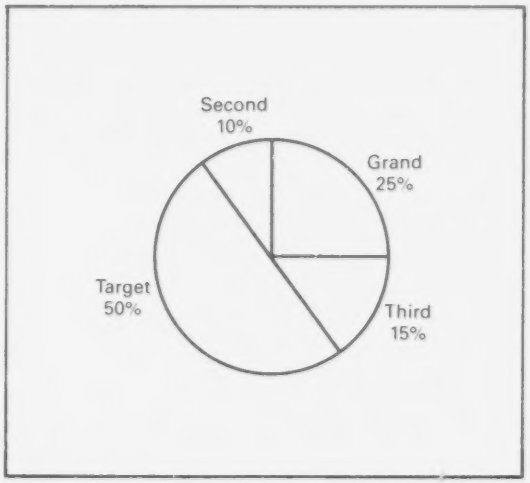
| Place | Odds |
|---|---|
| First (per game) | 1:7,059,052 |
| First (per ticket) | 1:3,529,562 |
| Second (per ticket) | 1:15,480 |
| Third (per ticket) | 1:335 |
| Overall (per ticket) | 1:328 |

## The Grand Prize Pool

Money designated for the grand prize is used to purchase an annuity, a financial instrument that promises to pay a fixed amount each year for a certain number of years. Annuities are commonly included in trust funds, scholarship funds, and various insurance packages. To help illustrate how an annuity

Chart 1

Allocation of Lotto Sales Receipts

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works, suppose you wanted to assure yourself of an income of $50,000 per year for the next 20 years, knowing that the current rate of interest is 8 percent. To do this, you could purchase an annuity costing only $490,900 — the cost is significantly less than the $1 million total value of the annuity because the seller of the annuity can invest your initial payment in various other ways and thus realize a positive return off your payment. Put more simply, money today (your inital investment) is more valuable than money promised in the future (the annuity payment stream) because of alternative investment opportunities. Therefore, when the lottery officials announce a grand prize of, say, $1 million, what they are really saying is that the grand prize for a single winner is only $490,900. That is the amount that your prize of $50,000 per year for 20 years is worth today. It is assumed that the average rational person would be indifferent between $490,900 now or the $50,000 stream of payments in the future, given the 8 percent discount rate.

### Income Taxes and Lotto Winnings

To take the analysis one step further, let us now consider in a simplistic way how income taxes may affect lottery payoffs. If we assume that lottery winnings are the sole source of income, that tax rates will not change from their 1983 levels, and that only one exemption is claimed, then the actual after-tax value today of a $1 million grand prize paid in the form of an annuity is roughly $342,418, or about one-third of the total advertised grand prize. However, if the winnings from the same lottery were received today (that is, $490,900), the after-tax value would then be approximately $249,114, or $93,304 less than if winnings were paid in the form of an annuity.[1]

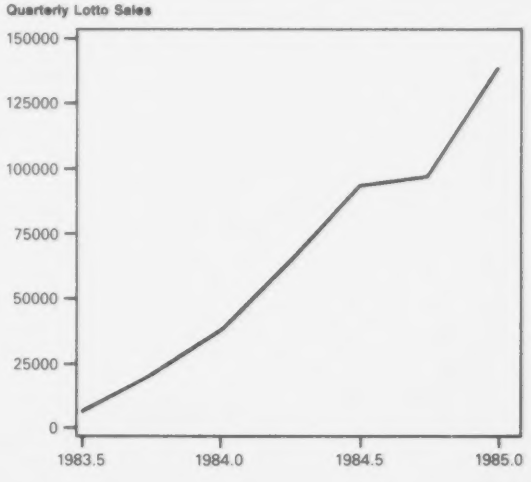
This brings into some question the legitimacy of the advertising policy associated with the lottery, for it is certainly more persuasive to advertise the possibility of winning $1 million than the $342,418 after-tax value of the grand prize. Moreover, the whole issue of advertising the lottery games opens the door for discussion of the fairness of the lottery in general. After all, the lottery is first and foremost a voluntary tax, and manipulating the amount of this "taxation" through advertising may result in inequities among those who play. It could be that advertising causes poorer people to play the lottery more, resulting in a lottery tax scheme that may be highly regressive.

### Expected Returns and the Odds of Winning

Research does not seem to support the notion that different income groups participate in the lottery in differing degrees. Even so, it may be useful to develop a framework whereby the question of lottery participation can be studied on a rational economic basis. At the outset, it is simply astounding that anyone would even play Lotto in hopes of being a winner in the face of such extremely low odds. To put the probabilities of winning into perspective, it is helpful to compare them with the odds of other occurrences. Consider the following examples: The odds of receiving a royal flush from the deal are only 1 in 649,740, as compared with winning the grand prize on a Lotto card (2 games) of 1 in 3,529,562. Even more astounding is the fact that a person is more likely in one year to be in a car crash (1:5,025), have a heart attack (1:784), or die of syphillis (1:1,000,000) than to win the Lotto grand prize in a given week. Yet, despite the almost zero chance of winning, the number of people who play Lotto each week has been growing at an amazing rate (Chart 2).

To understand how and why people participate in games of chance, it is helpful to borrow a simple concept from the world of the economist. The concept referred to is that of expected return, or put more simply, what one expects to win from games of chance. Suppose, for instance, that you were told you would earn $1 if a coin is flipped and comes up heads. In this case, your expected return would be calculated by multiplying the probability of the event occurring by the payoff associated with the occurrence. Hence, in our simple example, your expected return would be $0.50.

Chart 2




[1] An Illinois tax rate of 3 percent was used for state taxes, while federal taxes were computed using the Federal Tax Table for the first figure and Schedule X for the second.

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Now let us take the example one step further. Suppose that in order to play the game, you must pay a fee of $0.75. It is no longer rational for you to play the game because you expect a return of $0.50, yet it costs you $0.75 to play! Similarly, at a cost of $0.25 per play, you will play as often as you can because you know that on average you will earn $0.50 per play, or $0.25 more than the cost of playing. Therefore, at a cost of $0.50 per game, the player should be indifferent between playing or not.

Expanding our simple example of the coin toss to Lotto, one can easily compute the expected return of playing when the prizes are known. To illustrate, assume that the grand prize for a certain week is stated as $1 million. Ignoring tax considerations and recalling that the truly important measure is not the accumulated winnings over the life of the annuity, but rather its "present value," we find the expected return to be $0.28 (probability times payoff, or 1/3,529,562 × 1,000,000). After including the $1 charge per ticket for playing Lotto, we find that players of Lotto will realize an expected loss of $0.72. That is, on the average, a player will expect to lose $0.72 each time he/she plays Lotto.

Moreover, the present value of the prize pool necessary to yield an expected return of just $0 (to break even) is $3,529,562. Putting this in terms of an annuity at our assumed interest rate of 8 percent results in a grand prize of $7,189,873. In other words, the advertised Lotto grand prize for a given week must exceed $7,189,873 if the player is rationally to expect a nonnegative return on his dollar fee! Only occasionally has the Lotto grand prize exceeded this total.

### Why DO People Play?

Given the almost impossible odds of winning coupled with the fact that players face an expected loss each week except under the most extreme circumstances, how can one possibly explain such great interest in playing the lottery? Are we to conclude that people who play the lottery are unaware of their ability to calculate a negative expected return, or are they are just plain dumb? Hardly, for the reasons people play the lottery run much deeper than expected return. Once again, we can find an explanation of this curious phenomenon by reentering the world of the economist.

Economists by nature are fond of looking at what just occurred, be it inflation, taxes, or even what an individual just purchased at the corner store. When looking at consumption, economists find it true that the more of some good one consumes, the less satisfaction one receives from the unit last consumed than from the unit first consumed. For instance, the first beer at a local tavern yields a certain amount of pleasure, the second beer yields a little less, and so on. Economists call satisfaction "utility" and the last unit the "marginal" unit. Hence, the marginal utility (additional satisfaction of the last unit consumed) decreases as more of that good is consumed.

This concept is fundamental to understanding why people play the lottery. People get utility (satisfaction) from the possilility of winning all that money as well as the sheer thrill of the game. However, we must also keep in mind that playing Lotto and receiving that utility costs $1. That marginal dollar one spends to play Lotto could have been spent on a number of different goods such as food, flowers, or what have you. From such reasoning, it must be the case that people experience a marginal utility from playing Lotto that meets or exceeds the marginal utility of any alternate purchase. In English, this simply says that the additional satisfaction received from playing Lotto must be greater than or equal to the additional satisfaction one could receive by spending that dollar in some other way.

Using this analysis, it is now possible to offer an explanation of why people from all income groups have become so enthusiastic about Lotto. First of all, recall that the more of something someone has, the less that last unit of the good is worth to him. With this in mind, we understand that the last dollar held by someone with high income is worth less to him or her than the last dollar held by someone with lower income simply because people with higher income have more dollars. At the same time, the marginal utility generated by the possibility of winning big money is probably greater for those who have less income than for those who are relatively well off. Therefore, people with high income play Lotto because the marginal utility of the one dollar fee is low relative to the marginal utility of playing. On the other hand, those with low incomes play Lotto because the marginal utility received from playing (the hope of winning) is relatively greater than the marginal utility of the dollar spent to play.

The concepts presented in this article allow us to offer some explanation of why people play Lotto in spite of the low odds of winning and the associated negative expected returns. The question of equity surrounding the voluntary lottery tax remains, yet what has been presented is an economic framework in which such issues should properly be discussed. But what is perhaps more important is that this information will allow lottery players to more accurately assess their chances of winning and more realistically evaluate the sum and composition of the advertised grand prize.

# REAL ESTATE DEVELOPMENTS
# The Contemporary Manufactured Home: Its Changing Role in the Housing Market

**James L. Rose and Michael J. Duncan**

In 1980, 3.87 million manufactured homes (popularly known as mobile homes) housed 10 million people, accounting for 5.3 percent of the nation's housing stock. By 1983, manufactured homes accounted for a striking 82 percent of all single-family homes sold for under $50,000 and almost a third (32 percent) of all new single-family homes sold nationwide. More than half of these new homes were placed on individual lots in existing communities, rural areas, or in subdivisions where the homeowners also owned the land. Despite these trends, only recently have those outside the industry recognized the potential of manufactured homes in meeting the needs of many prospective homebuyers who are looking for affordable housing options.

The contemporary manufactured home has emerged from the trailer of the 1930s and the mobile home of the 1950s to become an increasingly important and more widely accepted form of housing. This development has resulted primarily from market forces rather than from any particular intervention from the government or the real estate profession. In an attempt to increase the awareness of housing consumers and professionals about modern manufactured homes, particularly those that are permanently sited, we conducted a study on manufactured housing during the period June through October 1984. This article provides a summary of our findings.

## Market Trends

For many years, manufactured homes have been misunderstood as a housing resource. Manufactured homes have traditionally been relegated to locations in rental parks or on privately owned land in small towns or rural areas. The physical appearance of older trailers and mobile homes, as well as associated attitudes about the transiency of manufactured homes and their occupants, often led municipalities to use zoning ordinances and other regulatory controls to prohibit manufactured housing in residential areas. Lenders historically treated the earlier forms of manufactured homes as personal property, rather than real property, which resulted in short-term loans at high interest rates. Also, manufactured housing was assumed to depreciate. Values for existing homes were calculated in a similar manner to that used for cars. Another method applied a fixed rate of depreciation down to a minimal residual value.

Many of the traditionally held views about manufactured homes, however, have been slowly changing in response to the characteristics of contemporary manufactured housing. Construction quality has improved as a result of the adoption of the US Department of Housing and Urban Development's Manufactured Home Construction and Safety Standards (HUD Code) in 1976. This national code regulates the construction of all manufactured/mobile homes. All other forms of factory-built housing such as modular, panelized, or precut homes are regulated by state or local building codes. The average size and the proportion of multisection homes produced have increased, and the frequency of movement has decreased (recent data suggests that only 1 to 3 percent of new manufactured homes are moved other than from the factory to a site). Additionally, improved financing for this type of housing has recently been made available to consumers, and the older approaches to determining the value of manufactured homes are being revised in response to evidence that some newer manufactured housing appreciates rather than depreciates in value.

In the past, the market for manufactured homes was well defined. It consisted primarily of retired people and young, first-time home buyers who were seeking lower-cost housing alternatives. The physical size of the dwelling unit was not a particular concern for these consumers. As manufactured homes have evolved into larger, more sophisticated housing forms, however, and many of the barriers that limited their acceptance have been broken down, the market for manufactured housing has become more segmented.

The market group that typically purchases smaller, single-section homes for placement in rental communities should continue to be a significant element of the population buying manufactured housing. Currently in the United States, approximately 50 percent of all manufactured homes can be found in rental communities. While it is still a common practice for buyers of manufactured homes to rent a lot for placement of their unit, an increasing number of smaller homes are now being located in cooperative/condominium developments. A traditionally strong demand for manufactured homes has come from consumers who have purchased homes for placement on individually owned lots in small towns or rural locations. That demand should continue unabated due, in large part, to the less restrictive nature of

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regulatory controls in nonurban areas. As the need for affordable housing continues and contemporary manufactured homes more closely resemble site-built homes in appearance and financing terms, the growing trend toward placement of permanently sited multisection homes in subdivisions should also continue. Finally, a potential market for manufactured housing exists in urban areas. Manufactured homes have been placed on scattered lots and have been used in larger urban infill projects in a few cities.

### Manufactured Homes in Illinois

There were an estimated 101,655 year-round-occupied, manufactured homes in the state in 1980, representing 2.5 percent of all occupied housing in Illinois. The 1980 figure for occupied manufactured homes ranked Illinois 15th among all states and 43rd on the number of units per 100,000 population.

The number of manufactured home shipments into Illinois during the period 1977 to 1982 declined steadily from nearly 5,800 units to about 2,700 units but rebounded significantly in 1983 to almost 3,900 homes. During those same years, the proportion of multisection homes shipped into the state was below the national average of 27 percent.

The location of manufactured homes in Illinois is similar to that found in other parts of the country. Smaller units are located in approximately 1,400 rental communities in the state and on individually owned lots in small towns or on property in more rural areas. Multisection homes can be found in rental communities, on scattered residential lots in rural communities, and in a few subdivisons that have been specifically developed for the placement of manufactured homes on foundations. In urban areas, manufactured homes are located primarily in rental communities that can usually be found on the fringe areas of municipalities or on land designated for industrial or commercial development.

Manufactured homes have not been treated favorably, for the most part, in the more urban/suburban locations in Illinois. Many existing municipal ordinances were adopted prior to the development of contemporary manufactured homes and the establishment of the HUD Code in 1976. These ordinances effectively prohibit manufactured homes from residential areas. Whether such local regulation should apply to the modern, permanent residences being built today is a question currently facing many cities and towns throughout the state.

### Local Regulation

Communities regulate land development in several ways, including zoning ordinances, building codes, and subdivision regulations. Private restrictive covenants may also control the use and development of land. The zoning ordinance is the most important land-use control pertaining to manufactured housing. Zoning ordinances may exclude manufactured homes altogether or restrict them to rental parks. The other types of development controls may also be used to exclude manufactured housing.

Changes are occurring in local regulation of manufactured housing. In some states, zoning practices are being altered to end the exclusion of permanently sited manufactured housing while ensuring that the manufactured homes are compatible with existing housing. Legislation in 15 states has been enacted to prevent the exclusion of manufactured homes. These states have provided model ordinances to guide communities in any necessary changes to their zoning law. The model ordinances classify the types of manufactured homes by size, appearance, age, and foundation system, indicating appropriate treatment of differing types of housing by the community. Judicial decisions in some states have also mandated an end to exclusionary treatment of manufactured homes. In Illinois, however, the dominant regulatory climate in many communities remains unfavorable for manufactured homes. A thorough analysis of the legal status of manufactured housing in any community is thus a necessity for any proposed development using manufactured homes.

### Finance and Taxation

The financing of manufactured homes has changed dramatically in recent years. In the past, financing typically took the form of consumer installment loans with short terms and high interest rates. These loans were commonly arranged by the mobile home dealer through commercial banks or consumer finance companies. This system closely resembled the method of financing automobile purchases. Current financing practices have broadened to include longer-term personal property loans, conventional mortgages for permanently sited manufactured homes, and a variety of federally insured loan programs.

Manufactured homes that are permanently sited are legally defined as real property and may receive conventional mortgage financing with fixed or adjustable rates. The Federal Housing Administration and the Veterans Administration offer guaranteed 30-year mortgage loans to eligible recipients. The Federal National Mortgage Association purchases mortgages on permanently sited manufactured housing as part of its secondary mortgage market operations. Permanently sited manufactured homes are also eligible for the Illinois Housing Development Authority's Affordable Mortgage Program. The availability of conventional mortgage financing, with its lengthy terms and lower interest rates, makes the purchase of a manufactured home to be permanently sited more attractive to the housing consumer.

One of the reasons for the widespread exclusion of manufactured housing from communities has been the perception that these homes do not pay their way in local taxes. But permanently sited manufactured homes are taxed as real property, contributing to the local tax base in the same way as other types of housing. Manufactured housing that is not permanently sited is assessed a local service tax in lieu of property tax payments.

## Development Options for Manufactured Housing

As the permanent siting of manufactured homes has become more common, new development forms have emerged. The most prominent of these are the manufactured home subdivision with individually owned lots and scattered-site urban infill.

The development of manufactured home subdivisions can be a more complicated process than that for their site-built counterparts. First, the legal status of manufactured homes must be thoroughly evaluated by the developer for the particular community. Substantial legal difficulties may exist that could render the project infeasible from the start. Second, a marketing strategy for the subdivision must be devised that targets the appropriate segment of the population. An important selling point of these subdivisions is the combination of new-home quality and affordable prices. In order to enhance the cost advantages of the homes, site design with higher densities, and clustering of homes have been experimented with by developers. Typically, planned unit developments have been used in these cases where the municipality and developer negotiate modifications or waivers of existing development controls in order to allow for innovative site design.

The infill siting of manufactured homes is an area where cost advantages over site-built housing are strongest, as site-builders are unable to realize economies of scale working with scattered sites. However, there are possible pitfalls with this type of development. There may be problems finding neighborhoods that are compatible with manufactured housing; property acquisition of scattered lots is time consuming; while unexpected costs arising from site preparation of urban vacant lots may be considerable. If these difficulties can be overcome, infill siting of manufactured homes can be an excellent way to efficiently develop housing on vacant urban land.

## Cost Comparisons

As part of our research, case studies were conducted investigating the feasibility of using permanently sited multisection homes to meet the needs of households seeking lower-cost new housing. The findings from the studies carried out in several Illinois communities indicated that permanently sited manufactured homes were substantially less expensive than comparable site-built housing. The building cost savings per square foot ranged from 22 to 37 percent. Developers of subdivisions for manufactured homes have indicated that a cost savings of at least 15 to 20 percent over conventionally built housing is necessary to attract consumers in the market for new housing. The findings suggest that permanently sited manufactured homes do possess the cost advantages necessary to be competitive with new conventional housing. In most of the communities studied, however, local land-use regulations would prevent the siting of manufactured homes on foundations.

## Conclusion

Advances in quality, safety, and energy efficiency, as well as improvements in financial and legal treatment have made manufactured homes increasingly competitive with site-built housing. But even with these improvements, the acceptance of manufactured housing varies throughout Illinois. In the future, manufactured homes should continue to improve in quality and to receive more favorable treatment by local government. This should provide housing consumers in the state with increased opportunities for affordable homeownership as well as new opportunities for those involved in the housing industry.


## ANNOUNCEMENT

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# Budget Balance and Economic Activity

**William R. Bryan**

During the recent political campaign there was a great deal of discussion regarding the necessity of bringing the federal budget into balance and the means by which that balance could be achieved. President Reagan maintained that economic growth would, at length, propel the budget toward balance. Walter Mondale argued that tax increases would be necessary to bring the budget under control. These arguments have continued into 1985.

An aspect of the controversy is that there is a "structural" deficit. According to this view, the federal budget would register a sizeable deficit even with a reasonably strong economy. An implication of the structural deficit view is that the balanced-budget pace of economic activity is out of reach, given the current tax structure. This article presents discussion and data bearing on that issue.

Deficits and surpluses across all sectors of the economy sum to zero. Thus, an implication of a structural deficit is a structural surplus of the remaining sectors of the economy, the nonfederal sectors. Virtually every discussion of the federal deficit proceeds on the basis of the unspoken assumption that the federal government is the locomotive pulling, or pushing, the rest of the sectors of the economy into their appropriately offsetting budget positions. This article does not address that assumption. Rather, we look at its flip side. Leaving aside the issue of whether the nonfederal sectors have been pushed, pulled, shoved, or have moved of their own volition, this article presents data and discussion of the post World War II history of budget developments of the nonfederal sectors.

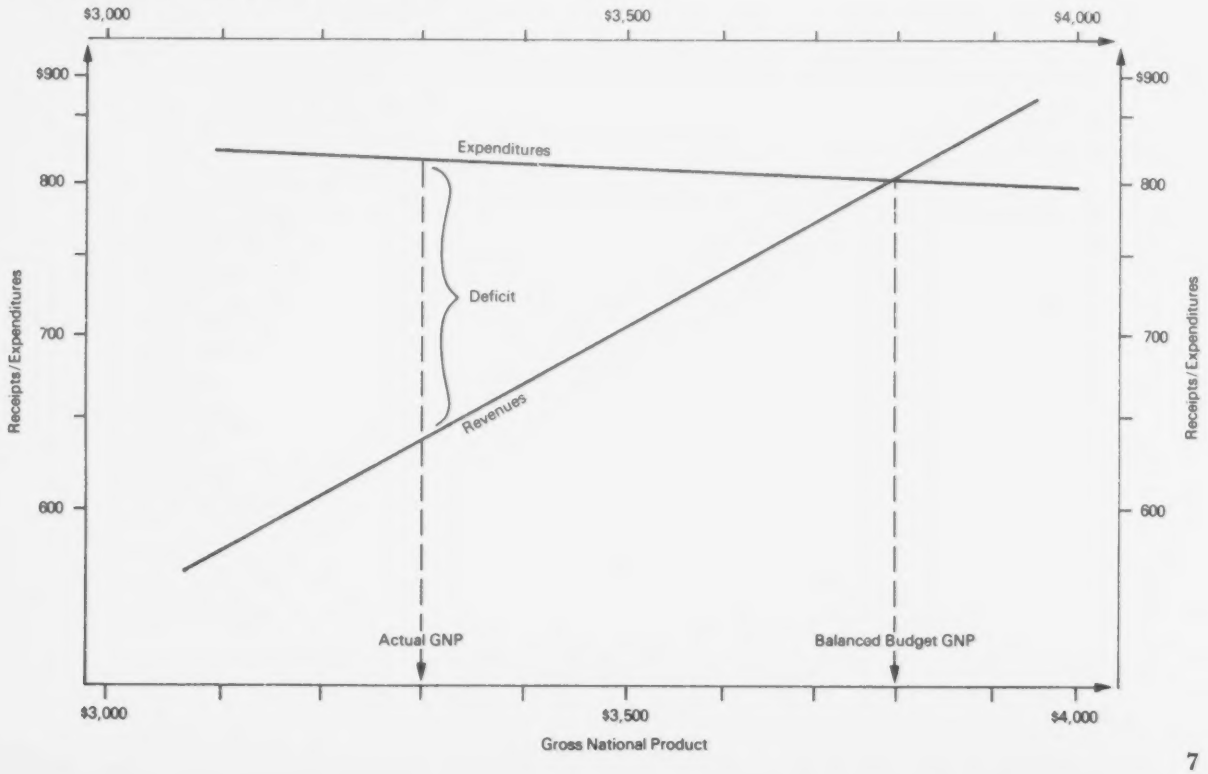
## The Deficit and the Economy

The federal budget moves toward surplus as economic activity expands and moves toward deficit as the economy slows. Such developments chiefly reflect changes in tax revenues. Revenues rise as economic activity expands and decline as the economy weakens. There is strong empirical support to this view. Beyond that, and in contrast, there is a view that federal expenditures tend to rise as the economy weakens and fall as the economy strengthens. These shifts reflect the automatic workings of the existing set of federal programs. Expenditures that rise include spending for unemployment insurance compensation, welfare, price supports, and so forth. As an empirical matter, this relation is neither strong nor consistent.

These relationships are shown in Chart 1, drawn with respect to the federal budget posture in 1983. The line on Chart 1 labeled "Expenditures" shows a slight decline as gross national product (GNP) expands. The schedule labeled "Revenues" indicates that there is a substantial rise as GNP expands. Both expenditures and revenues are measured on the ver-

Chart 1

**Federal Budget Schedules: 1983 (in Billions)**



tical axis of the chart. The Appendix explains how the schedules are estimated.

Given the schedules as drawn, a balanced budget would have been achieved if GNP had reached $3,804.1 billion. The term "balanced-budget GNP" is used frequently in this article. Balanced-budget GNP is the GNP at which federal revenues would equal federal expenditures, given the existing tax structure and spending programs. The budget is balanced at the point where the schedules cross on Chart 1. With a balanced budget, both revenues and expenditures would have reached $802 billion. As it turned out, GNP averaged only $3,310.5 billion in 1983 — 13 percent lower than necessary to achieve balance. At the 1983 pace of economic activity, revenue collections were only $641.1 billion; expenditures were $819.7 billion. Hence, the actual deficit averaged $178.6 billion.

From year-to-year, each of the schedules may shift. Changes in the expenditure schedule reflect explicit changes in federal spending plans, along with spending changes associated with existing legislation — entitlement programs, cost-of-living adjustments, and the like. The revenue schedule shifts as a result of changes in tax laws or of events in the economy that affect the way existing laws operate. Chart 2 illustrates such shifts.

From 1983 to 1984 the expenditure schedule moved upward as indicated by the arrow labeled "A." Such a shift means that expenditures would be greater at every level of GNP. There was also a movement in the revenue schedule shifted downward as indicated by the arrow labeled "B." Such changes are generally thought to be expansive. That is, other things remaining equal, increases in government expenditures and reductions in tax rates are generally thought to contribute to economic expansion.

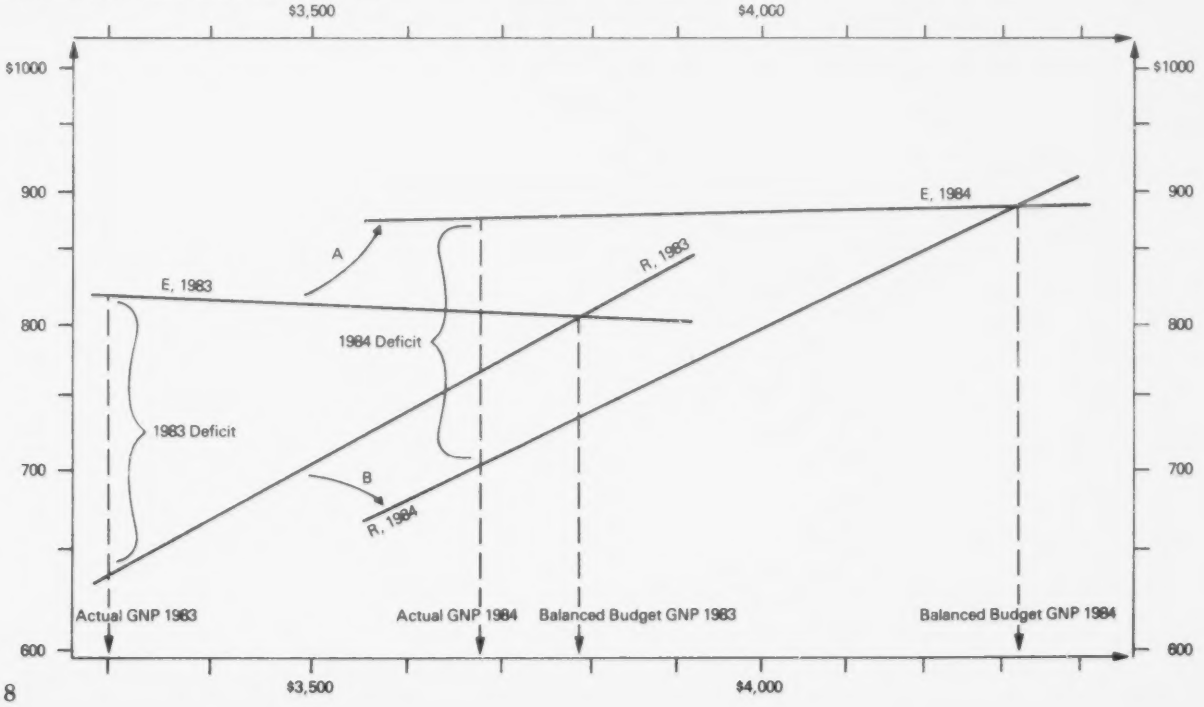
Balanced-budget GNP rose from $3,804 billion in 1983 to $4,313.8 billion in 1984 (see horizontal axis of Chart 2), an expansion of 13.1 percent. As it turned out, actual GNP rose from $3,310.5 billion in 1983 to $3,670 billion in 1984, a 10.9 percent increase. The shortfall in 1984 GNP resulted in an actual deficit of $172.1 billion, somewhat larger than the 1983 deficit.

President Reagans's assertion that growth in the economy will move the budget towards balance is appropriate in terms of the static setting illustrated by Chart 1. Within that setting the expenditure and revenue schedules are frozen in place. As income rises the federal budget moves towards, or into, surplus. But the President's assertions do not necessarily apply to the conditions depicted in Chart 2. Within that setting, both schedules are shifting through time; as a consequence, balanced-budget GNP is a moving target. Whether economic growth will result in a movement of the federal budget toward surplus depends upon how much the economy has grown and how much the revenue/expenditure schedules have moved. To achieve a movement toward surplus it is necessary that the revenue-generating consequences of growth more than offset potential increases in spending and/or decreases in taxes.

We know that the presumption of a static setting is inappropriate and that balanced-budget GNP is a moving target. What has been happening to this target? Is balanced-budget GNP moving out of reach? To deal with these questions, rudimentary estimates of balanced-budget GNP have been made for the 1955–1984 period.

Chart 2

**Federal Budget Schedules: 1983 and 1984 (in Billions)**



## Experience with Balanced-Budget GNP

One way of viewing the federal budget position is to relate developments regarding actual GNP to developments regarding balanced-budget GNP. Clearly, during periods when these two GNP measures are equal, the federal budget is in balance. The ratios of actual GNP to balanced-budget GNP are shown in the upper tier of Chart 3.

It is important to point out that there are no economic forces operating to bring about equality between actual GNP and balanced-budget GNP. They would turn out to be equal if, in equilibrium, the aggregate surpluses of the nonfederal sectors (households, busineses, state and local governments, and the rest of the world) sum to zero. Such a set of developments would emerge from fortuitious circumstances only.

Even though there is no presumption of equality, it is of interest to understand why there are changes in the relationship between actual GNP and balanced-budget GNP. As suggested earlier, one basis for change relates to the performance of the economy; another basis relates to shifts in the budget position itself. To deal with the first of these possibilities, actual GNP is shown as a ratio to potential GNP for the period 1950–1984 in the middle of Chart 3 (see Appendix for discussion). To deal with the second possibility, that shifts between actual and-balanced-budget GNP reflect changes in balanced-budget GNP, the ratios of balanced-budget GNP to potential GNP for the 1955–1984 period are shown in the lower tier of Chart 3. It can be argued that there is no structural deficit problem as long as balanced-budget GNP remains reasonably close to potential GNP. That is, it is plausible to presume that the budget plans of the federal government are within the capabilities of the overall economy.

During the 1950–1969 period, the budget fluctuated between surplus and deficit, as actual GNP fluctuated around balanced-budget GNP (see upper tier of Chart 3). For nine years it was in suplus; for eleven years it was in deficit. Over the 1950–1969 period as a whole, the cumulative deficit was $19.9 billion (on income and product account).

But since 1969 actual GNP has drifted below balanced-budget GNP. Balanced-budget GNP has exceeded actual GNP during each of the past 15 years. Moreover, the differential has widened in recent years. Over the 1970–1984 period, there was a cumulative deficit of $910.9 billion.

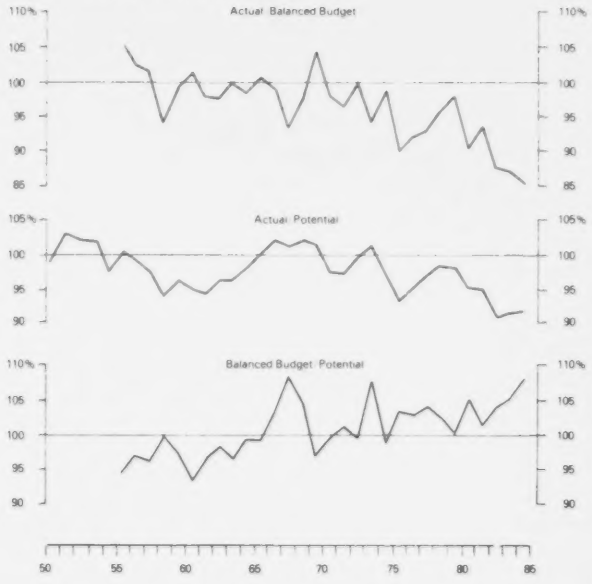
Only part of the developments in the federal budget can be explained on the basis of shifts in economic activity. Consider the period of relative budget balance during the 1950–1969 period. As the middle tier of Chart 3 shows, the period included substantial swings in actual GNP around its potential. The economy tended to drift below its potential during the second half of the decade of the 1950s and the early part of the 1960s. Even so, the budget registered a substantial deficit only in the recession year of 1958. There was a built-in bias of the federal budget toward surplus. Thus, during much of the mid-1950s to early 1960s, balanced-budget GNP remained well below potential GNP (see lower tier of Chart 3). Economists sometimes referred to that bias as "fiscal drag." It was argued that successive movements of the economy toward recession in the 1950s and early 1960s were caused by fiscal restriction, triggered whenever the economy moved even remotely near its potential. Such arguments were used in support of the major tax cut in the Kennedy-Johnson administration.

Consider the 1970–1984 period, during which the federal budget has moved strongly and persistently into deficit (see upper tier of Chart 3). During the early 1970s the economy moved above it's potential, then began its irregular downward drift away from high level performance (see middle tier of Chart 3). During the early 1970s balanced-budget GNP jumped sharply above potential GNP and has since remained in that range (see lower tier in Chart 3). Hence, the bias toward surplus has been fully removed from the federal budget. But "fiscal drag" has grown another head. It has become fashionable to argue that there is a structural deficit. It is further argued that the federal deficit drives real interest rates higher than would otherwise be the case, thereby limiting capital expenditures and retarding economic expansion. One wonders why there was not a widely held view in the early 1960s that movement of the federal budget toward surplus drove real interest rates lower, thereby stimulating the economy.

Since 1973 the actual performance of the economy has continued to fall short of its potential. That shortfall has widened more or less consistently since

Chart 3

**GNP Relationships (Actual/Balanced Budget)**



1979 (middle tier of Chart 3). Balanced-budget GNP has remained above potential GNP, but the gap has not increased. Reflecting these developments, actual GNP has continued to drift below balanced-budget GNP (upper tier of Chart 3).

My interpretation of this concatenation of events is that persistent federal budget deficits chiefly reflect the weak performance of the economy. To a somewhat lesser extent, the persistent deficits reflect a bias in the federal budget posture. That is, in contrast to the situation in the 1950s, the budget will be in deficit unless the economy is performing above its measured potential. Whether this bias deserves to be regarded as a "structural deficit" about which something should be done is a matter of political predilection. I am inclined to argue that direct efforts to move the federal budget toward surplus should be avoided. Rather, I would focus attention on measures that stand a good chance of moving the economy toward its potential. In any event, it should be recognized that there is only a short step between "fiscal drag" and "structural deficits." Although economists are capable of fancy footwork, we are not very good at walking gingerly.

## The Surplus Problem of the Nonfederal Sectors

During any and every period of time, deficits and supluses sum to zero across the total economy. As discussed earlier, this means that a federal deficit is just matched by a surplus in the remaining sectors of the economy; a federal surplus is just matched by a deficit in the rest of the economy. One way of understanding the emergence of the federal deficit is to understand the emergence of the surplus of the nonfederal sectors. Indeed, if it is sensible to regard the federal deficit as a problem, it is just as sensible to regard the nonfederal surplus as a problem.

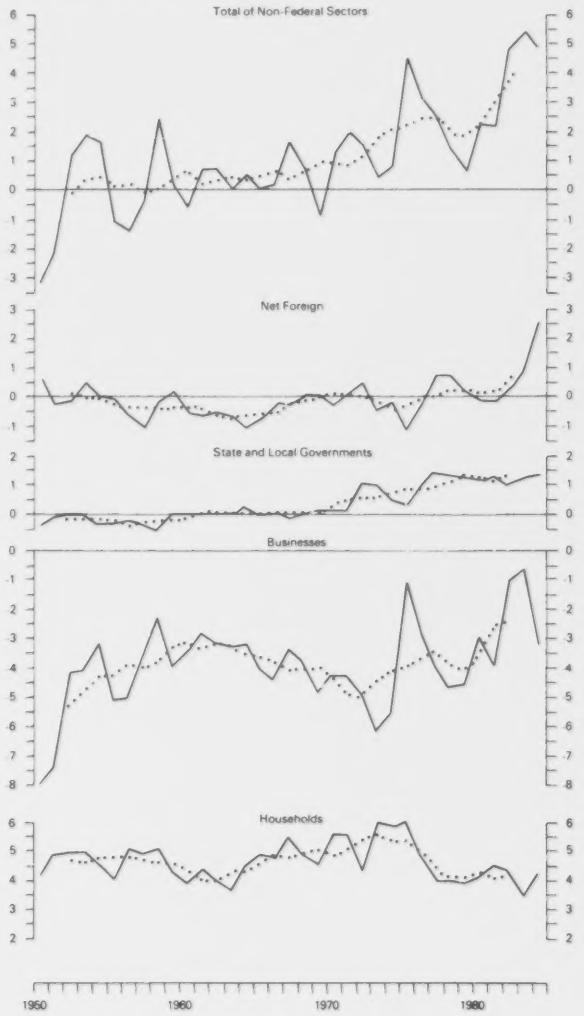
The "budget" positions of the nonfederal sectors are shown in Chart 4. To maintain comparability through time, each of the sector flows is divided by GNP for each year. The upper tier of Chart 4 summarizes the sector flows (dotted lines are 5-period moving averages). Note that, as a counterpart to the description presented above, the nonfederal sectors were essentially in balance during the 1950–1969 period — with an annual surplus averaging 0.10 percent of GNP. Since then, the nonfederal sectors have moved persistently and substantially into surplus, averaging 2.49 percent of GNP in the 1970–1984 period. The change constitutes a 2.39-percentage-point swing from the early to the latter periods. As might be expected, the change resulted from a combination of factors.

*State and local governments* have moved strongly into surplus. Indeed, the shift in budget positions of state and local governments is the strongest and most persistent factor explaining the surplus of the nonfederal sectors. Over the 1950–1969 period, state and local governments experienced a cumulative deficit of $6.3 billion, averaging 0.09 percent of GNP. But state and local governments have registered a $346.2 billion surplus in the 1970–1984 period, averaging 0.99 percent of GNP. Such a change represents a 1.08-percentage-point swing in budget positions, accounting for nearly one-half the budget shift of the aggregate of the nonfederal sectors.

The movement of the state and local governments into surplus corresponds to two developments. First, and perhaps most important, was the introduction of federal revenue sharing. Second, has been a decline in important state and local government services — for example, the reduction in educational services resulting from the decline in school-age population. Thus, state and local governments began receiving shares of federal revenues at a time when the federal government had little revenue to share and when the growth in state and local services was beginning to diminish.

Chart 4

**Budget Positions of Nonfederal Sectors**



*The business sector* is always in deficit. In the 1950–1969 period, its cumulative deficit was $436.4 billion; in the 1970–1984 period, it registered a cumulative deficit of $1,012.3 billion. Hence, at first blush and in terms of raw numbers, it would appear that the business sector has not contributed to the surplus problem of the nonfederal sectors. Not so. In relation to GNP the business sector has moved toward surplus (see fourth tier of Chart 4). In the 1950–1969 period, the business sector deficit averaged 4.2 percent of GNP; in the 1970–1984 period, the sector deficit averaged only 3.6 percent.

It would be easy to believe that the movement of the business sector toward surplus has resulted from a diminution in investment. Such an explanation fits into the general picture of an economy that is falling short of its potential. Indeed, one of the chief explanations of accelerations or decelerations in business activity highlights the key role of shifts in business investment. Alas, the data do not fit that explanation. Business investment during the 1950–1969 period averaged 15.7 percent of GNP; during the 1970–1984 period it averaged 15.8 percent. Instead, the shift in the business sector's deficit position has reflected a rise in business saving. In the 1950–1969 period, business saving expanded at a 6.3-percent annual rate and averaged 11.5 percent of GNP. In the 1970–1984 period, business saving rose at an 11.9-percent rate and averaged 12.2 percent of GNP (it has averaged 12.9 percent of GNP in the last decade).

Why the rise in business saving? Without more work, I can only conjecture. An important part of business saving consists of capital consumption allowances. Like the rest of us, business firms have a strong incentive to minimize their tax liabilities. With the rapid acceleration in rates of inflation, they were able to beef-up their depreciation statistics. As a twin consequence, federal tax revenues were cut, and business saving was expanded.

Whatever the explanation for the rise in business saving, the relative movement of the business sector toward surplus accounts for about one-fourth of the overall shift of the nonfederal sectors into surplus.

*The foreign sector* is a supplier of funds during periods when the United States is in deficit on current account and is a demander of funds whenever we are in surplus on current account. During the 1950–1969 period, the foreign sector experienced a $39.5 billion cumulative deficit on current account, averaging 0.33 percent of GNP. Hence, foreigners were net demanders of funds in US credit markets. Since 1969, the foreign sector has contributed $122.4 billion to US credit markets, averaging 0.19 percent of GNP. This 0.52-percentage point shift in budget position has accounted for about one-fifth of the movement of the nonfederal sectors into surplus.

The bulk of the foreign sector shift into surplus occurred in 1983 and 1984 (see second tier of Chart 4).

*The household sector* is always in substantial surplus. Its cumulative surplus during the 1950–1969 period was $499.6 billion, averaging 4.6 percent of GNP. The $1,432.7 billion cumulative surplus during the 1970–1984 period averaged 4.8 percent of GNP. But the expansion in the household sector surplus was limited to the 1970–1975 period. In the past eight years, the household sector surplus has declined, averaging about 4 percent of GNP.

## Concluding Remarks

I have examined several factors associated with the growth of the federal deficit over the past decade. In looking at the federal budget position itself, I have been led to two conclusions. One, the chief explanation for the persistent and growing federal deficit relates to economic malaise. Whatever explains the persistent departure of the economy from its potential growth path serves also to explain the emergence of most of the federal deficit. Two, in the past decade balanced-budget GNP has depended more heavily on high-level economic performance than was the case in the decade of the 1950s. Thus, in our efforts to remove fiscal drag, we may have succeeded also in introducing a structural deficit.

The emergence of the federal deficit has also been explained in terms of the emergence of an aggregate surplus across the nonfederal sectors. State and local governments, along with the net foreign sector, have moved heavily into surplus. The business sector remains in deficit, but has moved toward surplus. Each set of sector developments has a reality of its own. To some extent, these sector developments are quite independent of developments relating to the federal deficit. Yet these separate sets of developments, added together, just precisely offset the federal deficit.

It is interesting to conjecture over the fact that if, at length, successful measures are taken to reduce the federal deficit, those same measures will drive the remaining sectors toward deficit. In that event, we will be treated to a somewhat different set of worries.

## Appendix

### *Data*

There are several sources of data relating to actual GNP and actual federal receipts and expenditures. For the most part, the data used here are from the *Economic Report of the President, 1985*. These data are updated from *Monetary Trends*, a monthly publication of the Federal Reserve Bank of St. Louis. There are also several sources for alternative hypothetical GNP and federal budget data. For the 1955–1975 period, I relied on estimates of high employment GNP and high employment GNP and high employment receipts/expenditures generated by the Office of Management and Budget. For the period since 1975, I have relied on cyclically adjusted GNP and cyclically adjusted receipts/ expenditures prepared by the Department of Commerce.

Estimate of potential GNP are taken from *Economic Projections for OASDI Cost and Income Estimates, 1984*, US Department of Commerce, January 1985.

To estimate the annual revenue and expenditure schedules it was necessary to identify, for each year, two

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observations of GNP and associated observations for revenues and expenditures. Assuming a linear relationship, I simply used the observations to solve for the unknowns.

### *Reseravations*

It is important, but depressing, to acknowledge some of the weaknesses of the estimates reported in this paper. First, there is essentially no way of assessing the quality of the underlying estimates of high-employment, cyclically adjusted, and potential estimates — either of GNP or of receipts/expenditures. Second, each of the simultaneous equations for estimating the annual receipts and expenditure functions is linear. There is every presumption that this model is wrong. But I am hopeful that it is not too bad within the short-term context in which it is used. There are other, somewhat more subtle, difficulties. For example, an implicit ingredient of the approach used here, in which alternative hypothetical GNPs are compared for a given year, is that the same set of prices applies for each GNP estimate. That is probably not true. Indeed, there is a view that higher levels of GNP are likely to be associated with greater rates of inflation, hence, a higher price level.

ILLINOIS BUSINESS INDEXES

| | Percent Change March 1984 March 1985 | March 1985 | Feb 1985 | Jan 1985 | Dec 1984 | March 1984 | Feb 1984 |
|---|---|---|---|---|---|---|---|
| Coincident Indicator (1969=100) | 7.03 | 113.67 | 112.16 | 116.17 | 112.78 | 106.20 | 104.30 |
| Employment-manufacturing (in thousands)[c] | -3.21 | 960.40 | 964.30 | 966.30 | 971.00 | 992.30 | 973.60 |
| Average weekly hours-manufacturing[c] | -1.47 | 40.30 | 39.60 | 40.40 | 39.10 | 40.90 | 40.90 |
| Weekly earnings-manufacturing[c] | 1.25 | $414.69 | $407.09 | $414.91 | $402.73 | $409.59 | $406.55 |
| Help wanted advertising-Chicago (1969=100)[a] | 8.89 | 98 | 100 | 90 | 107 | 90 | 92 |
| Help wanted advertising-St. Louis (1969=100)[a] | 37.04 | 74 | 72 | 51 | 61 | $54 | $60 |
| Retail Sales (in millions)[b] | 6.27 | $4,851 | $4,312 | $4,366 | $5,994 | $4,565 | $4,255 |
| Coal production (in thousands) | -10.32 | 5,258 | 5,098 | 5,620 | 4,748 | 5,863 | 5,344 |
| Petroleum products (in throusands)[c] | -5.12 | 2,260 | 2,040 | 2,540 | 2,559 | 2,382 | 2,032 |
| Vendor performance | -36.11 | 46.0% | 48.0% | 47.0% | 45.0% | 72.0% | 68.0% |
| Building permits (in thousands) | | | | | | | |
| Residential housing units | 13.34 | 2.421 | 1.282 | 0.917 | 1.086 | 2.136 | 1.570 |
| Value of Residential housing | 17.44 | $146,420 | $70,824 | $56,813 | $71,393 | $124,676 | $93,413 |
| Value of nonresidential construction | | | | | | | |
| Industrial buildings | 104.64 | $23,761 | $4,367 | $22,541 | $10,800 | $11,611 | $20,186 |
| Office, banks, and professional buildings | 155.37 | $65,906 | $44,259 | $25,389 | $91,400 | $25,808 | $25,919 |
| Stores and other mercantile buildings | 54.85 | $15,586 | $12,466 | $10,656 | $9,834 | $10,065 | $8,437 |
| Other | 142.21 | $4,384 | $1,318 | $1,293 | $1,219 | $1,810 | $1,035 |
| Consumer price index (December 1977=100) | | | | | | | |
| North Central US[c] | 3.01 | — | 171.2 | — | 170.4 | — | 166.2 |
| North Central/population more than 1,250,000[c] | 3.32 | — | 174.3 | — | 173.2 | — | 168.7 |
| North Central/population 385,000 to 1,250,000[c] | 2.72 | — | 169.7 | — | 169.2 | — | 165.2 |
| North Central/population 75,000 to 385,000[c] | 2.58 | — | 166.7 | — | 166.4 | — | 162.5 |
| North Central/population less than 750,000[c] | 2.75 | — | 168.2 | — | 167.6 | — | 163.7 |
| Chicago (1967=100) | 3.93 | 317.4 | 316.7 | 315.1 | 314.0 | 305.4 | 305.0 |
| St. Louis (1967=100) | 3.83 | 314.3 | — | 313.3 | — | 302.7 | — |
| | | 1984:III | 1984:II | 1984:I | 1983:IV | 1983:III | 1983:II |
| Personal income (in millions)[d,e] | 7.62 | $158,137 | $155,892 | $153,752 | $149,354 | $146,943 | $143,159 |
| Per capita personal income[d,e] | 7.62 | $13,738 | $13,572 | $13,386 | $13,003 | $12,793 | $12,464 |

[a]The Conference Board, *Help Wanted Advertising*, March 1985. [b]Latest month projected by BEBR. [c]Percent change between February 1984 and February 1985. [d]Percent change between 1983:III and 1984:III. [e]Recent month is preliminary figure.

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# Conrail for Sale

John Rearden

The federal government wants to unload Conrail while it is still making money. The US Department of Transportation has proposed selling its 85 percent of Consolidated Rail Corporation (Conrail) for $1.2 billion, to Norfolk Southern, which runs the Norfolk and Western and the Southern Railway. Conrail employees own the other 15 percent of the railroad. The combined railroad would become the country's largest; it would extend through the Southeast and Northeast into the Midwest. However, for the sale to become a reality, Congress must pass a bill authorizing it. This article discusses some of the issues Congress will face in making that decision.

## Alternatives

Naturally, to assess a choice like this, the available alternatives must also be considered. Instead of selling to Norfolk Southern, the Department of Transportation could sell to Allegheny Corp., an investment group headed by hotelier J.W. Marriott, Jr., or sell stock in Conrail in a public stock offering.

Neither Allegheny Corp. nor Marriott is presently running a railroad. Persons connected with Allegheny Corp. have had experience running railroads: they ran the New York Central, one of the failing railroads that made up Conrail. There is a suspicion that the Marriott group may not be deeply committed to running a railroad and would sell Conrail off in pieces. A public sale, favored by Conrail management and some forces in Congress, might be a disappointment if Conrail is unable to continue making profits. Lately, Conrail has been doing well, especially compared to its early performance. However, that good performance results partially from government protection, including paying below prevailing union wages and receiving special tax treatment. Consequently, if any of the alternatives, including a sale to Norfolk Southern, were implemented and Conrail lost these advantages, it might not do so well.

## Advantages

*Preventing Conrail Failure*

Secretary of Transportation Elizabeth Dole supports the sale to Norfolk Southern because that combination would the be least likely to fail and, therefore, would be least likely to need further government intervention. The federal government created Conrail from the bankrupt Penn Central and other ailing Northeastern railroads, a rescue that cost the federal government more than $7 billion.

The likelihood of failure is important to Illinois also because Conrail, and links to it, ensure Illinois products access to Northeastern markets by rail. Without Conrail, or some other rail service, more expensive truck service would have to be used in some areas.

A Conrail failure would also heavily affect the Northeast. The Northeast has only one other major carrier, CSX. If Conrail were to fail, CSX would have a monopoly.

*Efficiency Gains*

Supporters of the Conrail sale have argued that it would allow longer runs on one line, a change that would make railroads more competitive. Shippers tend to favor sending their wares on one railroad, since with concentration of responsibility, they know exactly who is on time and who is not. Also, even though railroads carry other roads' traffic, they tend to give priority to their own. Consequently, longer runs on one railroad may speed up service.

Longer runs on one line might avoid some disputes that develop when railroads transfer cars. Atlantic Group, for example, cannot determine who is to blame for breaking its bricks. The building supply company believes the bricks were broken in a rail

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yard where Conrail and Norfolk Southern meet. The sale would focus responsibility for such incidents.

The sale might also allow the new entity to eliminate some track that is not currently paying its way. In fact, some track will probably have to be sold in order for the sale to clear the Justice Department. In Illinois, Norfolk Southern has agreed to divest the old "Nickel Plate" line that runs from St. Louis to Edwardsville to Charleston to south of Danville toward Frankfort, Indiana. This line presently is not heavily used and mainly carries grain shipments. However, the major divestitures would probably occur in the Northeast and eastern Midwest where the most serious competitive concerns have been raised.

Once the sale has occurred, the new railroad would probably eliminate redundant routes. Conrail and Norfolk Southern both have routes that serve Peoria and Indianapolis. One of these may be a likely candidate for sale or abandonment. The Staggers Rail Act of 1980, which generally eases abandonment, makes it unlikely that opponents of abandonment would be successful.

Similarly, jobs could be consolidated between the two companies. Norfolk Southern originally estimated 2,530 jobs would be lost in the merger, but now Norfolk Southern says that half of the jobs would be continued by companies that picked up divested lines. Further, they say that no layoffs would be necessary because attrition would reduce employment quickly enough.

By improving service to shippers with longer runs and by eliminating unprofitable lines and reducing employment, a Conrail-Norfolk Southern combination might be able to cut freight rates. None of the proposed alternatives would offer this advantage since none of them would extend one railroad's network. A cut in freight costs could reduce the prices consumers and producers pay for many items shipped by rail since freight costs are included in the prices of the goods consumers and producers buy.

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## Problems

*Job Losses*

One person's benefit may well be another's cost. If layoffs occur, laid-off workers will definitely not count their job losses as a benefit of the Conrail sale. However, workers for the combined companies would receive something to sweeten the pill. Norfolk Southern has agreed to pay $375 million for the employees' stake in Conrail. Union workers would get a 12 percent raise retroactive to 1 July 1984, to match the rest of the railroad industry. Laid-off workers would get full pay for six years. Norfolk Southern has also offered to include Conrail employees in the bargaining unit in its stock purchase plan.

Nevertheless, Richard I. Kilroy, international president of the Brotherhood of Railway and Airline Clerks, has come out strongly against the merger and favors a public stock offering. The strong disagreement over the best alternative may in part be due to wildly divergent estimates of how many jobs will be lost due to a merger. The estimates run from Norfolk Southern's prediction of less than 1,500 jobs lost to the Railway Clerks' prediction of 10,000 jobs lost.

*Abandonment*

Another factor important to shippers on certain less-traveled lines is whether those lines will be abandoned. A Conrail-Norfolk Southern combination will probably abandon or divest more lines than the alternatives because the combination would make more lines redundant. The alternative buyers have no lines now so they would not be duplicating any by acquiring Conrail. Line abandonment is another area where one person's benefit is another's detriment. Conrail-Norfolk Southern would benefit from discontinuing lines that are not profitable. However, shippers that lose rail service would be harmed. They would lose an alternative and be left with only truck hauling, assuming that the lines were not picked up by anyone else.

*Reduction in Competition*

The major cost that might directly eliminate possible benefits of Conrail's sale to Norfolk Southern is a reduction in competition between the railroads. Most competition between Conrail and Norfolk Southern occurs in the East and the eastern Midwest. Although a reduction in competition in these areas might still affect Illinois products, especially grain going East, the strong alternative of the Illinois Central Gulf should prevent major effects on Illinois shippers.

In the East and eastern Midwest, however, the consolidation of rail traffic will be dramatic. Twenty US Steel facilities that now have competing carriers to choose between, Norfolk Southern and Conrail, will become "captive shippers." The likely effect of reduced rail competition is higher freight rates. However, railroads are not the only alternative. Freight trucking is a viable alternative in many instances, and

the presence of the trucking competition limits even a Conrail-Norfolk Southern entity's ability to increase rates.

Divestment of lines to other carriers could maintain at least some competition by keeping those lines in operation. The question, of course, is whether those lines would remain in operation. Some have argued that the small regional carriers that would be the likely candidates to buy the divested lines would not be able to compete with Conrail-Norfolk Southern. Certainly, these small carriers could not compete on price since Conrail-Norfolk Southern could have longer runs and also probably use a higher proportion of capital equipment than the regional carriers. The regional carriers may be able to compete on service, however, especially where shippers would have to send their goods a long distance by truck to reach another railroad.

*Striking an Economic Balance*

For shippers who are the customers of Conrail and Norfolk Southern and for those who buy the things shipped on the railroads, the value of the Conrail-Norfolk Southern merger depends on whether any potential efficiencies in freight-hauling would be overwhelmed by the monopolistic effects of the merger, and whether the final outcome would be preferable to the alternatives. Some shippers must also weigh whether the line they use will be abandoned. Labor will argue that the aggregate job reductions should be weighed in the final outcome.

The alternatives (sale to Allegheny or the Marriott group or a public offering) would foster more competition or maintain the present level, but the alternatives would not achieve longer runs on one railroad or any other gains in efficiency either. Presumably, of course, fewer jobs would be lost. Furthermore, the alternatives are probably more likely to fail, which would give CSX a monopoly or require another government rescue.

Illinois need not be as anxious about the Congressional choice as the East and the eastern Midwest. Illinois has other railroads that will prevent serious anticompetitive effects. However, some less-used lines may be abandoned. Others may be sold to smaller carriers, who would face an uphill battle against Conrail-Norfolk Southern. Illinois shippers also might be able to ship faster going East using the Norfolk Southern.

## Political Considerations

The final answer for Illinois and the nation will emerge from Congress. Many forces in Congress have expressed a preference for a public stock offering. That is, government-owned Conrail stock would be sold to the public much like stock of any other company. Because this plan would allow Conrail to survive as an independent entity, the public offering idea has gained support from unions and Conrail management.

Some in Congress have objected that the sale price for Conrail is too low. Norfolk Southern has offered $1.2 billion, but according to Sen. Arlen Specter, D-Pa., Conrail has $850 million cash on hand. Furthermore, Specter said, the scrap value of Conrail assets alone are $3 billion. However, no buyer seems willing to pay a price based on those factors.

The public offering has also been criticized as unrealistic. If carried out, the offering would be the largest first offering ever in the United States. Since conditions intended to protect shippers against price increases might well be included in the offering, Conrail's profit prospects and consequent attractiveness to investors would be dimmed.

Still, economic considerations are unlikely to control the Congressional decision. The only predictable thing about Congress' choice is that it will be a political one. On political grounds, a public offering has a great deal of appeal. Conrail employment and management would be maintained so both labor and management could join to support the public offering. The maintenance of the status quo would reassure shippers that their position will not worsen, especially if conditions protecting them are included in the offering. Congress would be able to claim a victory for its Conrail rescue, although spending $7 billion for a $1.2 billion sale would make the victory only symbolic.

Some political considerations support Norfolk Southern. The Reagan administration has thrown its considerable weight behind the sale. Congress does not want to rescue Conrail again or be blamed for a massive railroad failure so the less risky alternative, selling to Norfolk Southern, is consequently more attractive. Some shippers favor the sale to preserve Conrail and because they feel that they may get better service.

Norfolk Southern has made some astute political moves to support the sale. Norfolk Southern's Chairman and Chief Executive Officer Robert B. Clayton has reassured Philadelphia that it will keep Conrail headquarters. Clayton has also stated that Conrail will operate as an equal with Norfolk Southern's other subsidiaries, Norfolk & Western and the Southern Railway.

The other alternatives are not gaining much support. Congress seems to be divided between those favoring a sale to Norfolk Southern and those favoring a public offering. However, sale opponents, including the alternative buyers, need not actually defeat the sale to Norfolk Southern to prevent it; Norfolk Southern has said it will rethink its offer if it cannot buy by the end of 1985. At any rate, the buyer is in doubt but not the situation: Conrail is for sale.

# REAL ESTATE DEVELOPMENTS

## The Impacts of the Proposed Tax Reforms on the Housing Market

**James R. Follain**

President Reagan unveiled his plan for fundamental tax reform on 28 May 1985. One of the stated goals of the proposal is to reduce some of the inequities that exist under the current federal income tax laws. In particular, the proposal seeks to treat individuals and firms and investment and consumption choices in a more neutral fashion. Since housing is widely believed to be one of the more heavily favored sectors of the economy, there is much concern in the real estate industry as to the likely effects of the proposed reforms on the housing market. This article examines the likely effects of the President's Proposal. The results are largely derived from a computer simulation model developed to study the effects of the taxation of housing. Since the model is quite complex and requires a lengthy explanation, only the results of the model are presented here. A complete explanation of the model and an analysis of tax policy toward housing over the past 20 years will soon be available in the ORER Paper Series.

### Key Provisions of the President's Proposal

Six of the provisions of the new tax reform proposal may have a substantial effect on the housing market if enacted.

*(1) Reduction in Marginal Tax Rates*

The proposal calls for a reduction in both the level of marginal tax rates and the number of tax brackets. The proposed schedule consists of three marginal tax rate schedules of 15, 25, and 35 percent, down from the 16 marginal tax brackets that exist under current law. Given that the "tax advantages" to both owner-occupied housing and investment property depend upon the size of the marginal tax rate, a reduction in rates, all else equal, will reduce the tax benefits associated with housing investment. Therefore, this aspect of the proposal should reduce the overall demand for housing and the value of the existing housing stock.

*(2) Deductibility of Property Taxes*

Property taxes paid by owner-occupants will no longer be deductible if the proposal is enacted, though investors in rental property will still be able to claim these as deductions if the investor itemizes deductions. This provision unambiguously raises the cost of housing to itemizing homeowners.

James R. Follain is the Director of the Office of Real Estate and Professor of Finance at the University of Illinois, Urbana-Champaign.

*(3) Alteration of the Depreciation Allowance for Rental Property*

The new proposal switches from the current system of ACRS (Accelerated Cost Recovery System) to CCRS (Capital Cost Recovery System). CCRS is designed to make the depreciation allowance for rental property more closely aligned with real economic depreciation by setting the depreciation allowance equal to 4 percent of the inflation-adjusted basis. CCRS is approximately equivalent to an indexed system of straight-line depreciation with a 28-year useful life, because it is optimal to switch to straight-line depreciation in year four under CCRS. This system will generate a larger present value of depreciation allowances than ACRS at inflation rates in excess of about 5 percent per year — if the property is held to useful life. The depreciation allowances under CCRS, however, are spread over a longer time period than under the current system. As a consequence, the effect of this provision depends upon the rate of inflation. The higher the rate of inflation, the more favorable the new system will be to housing

*(4) Taxation of Real Capital Gains at Ordinary Rates*

This is a rather complex feature of the new law that will have offsetting effects on real estate investment. There will be no preferential rate for capital gains income from depreciable assets; however, nominal capital gains — that is, appreciation equal to the general rate of inflation — will be excluded from the computation of capital gains income. Such a system eliminates the need for rules regarding the recapture of excess depreciation. The effect of this provision depends on the rate of inflation of the general price level and its relationship to housing-price appreciation. The higher the general rate of inflation and the higher its correlation with housing-price appreciation, the more favorable the provision is to real estate.

*(5) Extension of the "At-Risk" Rules to Real Estate*

Current law allows an investor in rental property to claim depreciation allowances based upon the value of the structure at the time of purchase. Under the proposal, depreciation would be limited to the amount of equity of the investor plus the amount of recourse debt (debt for which the borrower is personally liable) owed by the investor. Since much of the mortgage debt held by investors in real estate limited partnerships is nonrecourse debt, there is substantial concern that this provision may seriously impair investment in rental property.

*(6) Limitations on Interest Deductability*

The current law allows an individual investor to deduct interest payments from taxable income up to an amount equal to $10,000 above the amount of the investor's *investment* income. The new law reduces this to $5,000.

Furthermore, the interest deductions of a real estate limited partnership are to be included. Interest deductions associated with most property held for use in a trade or business will still be allowable. Whether this particular provision will affect many investors is an unresolved empirical question; however, it is clear that the limitation will be more binding the higher the rate of inflation, given the close link that exists between inflation and nominal interest rates.

## Effects of the Proposal on Housing Values and Rents

The simulation model computes the user cost of housing capital — the real after-tax annual cost of a dollar of housing investment. The user cost equals the rental rate on a property necessary to make the net present value of the investment equal to zero when inflation and tax considerations are incorporated into the computation of net present value. Over a long period of time, the user cost of capital equals the rental rate that can be charged for a property in a competitive market economy. Thus, for example, a proposal that increases the user cost of capital by 10 percent will ultimately increase rents paid by tenants by 10 percent.

Chart 1 shows the average cost of housing capital under current law versus the President's proposal. Currently, the average cost of capital for both owner- and renter-occupied housing is about 10.9 percent, and this can be expected to rise to about 11.8 if the proposal is enacted. The cost of renter-occupied housing would rise from its current average of 11.3 percent to 12.1 percent. Thus, rents would have to rise by about 7.1 percent in order to attract investors to the rental housing market.

One consequence of a higher user cost of capital is that the demand for housing is reduced. Chart 2 shows

Chart 1

**Current Cost of Housing Capital under Current Law vs. the President's Proposal**

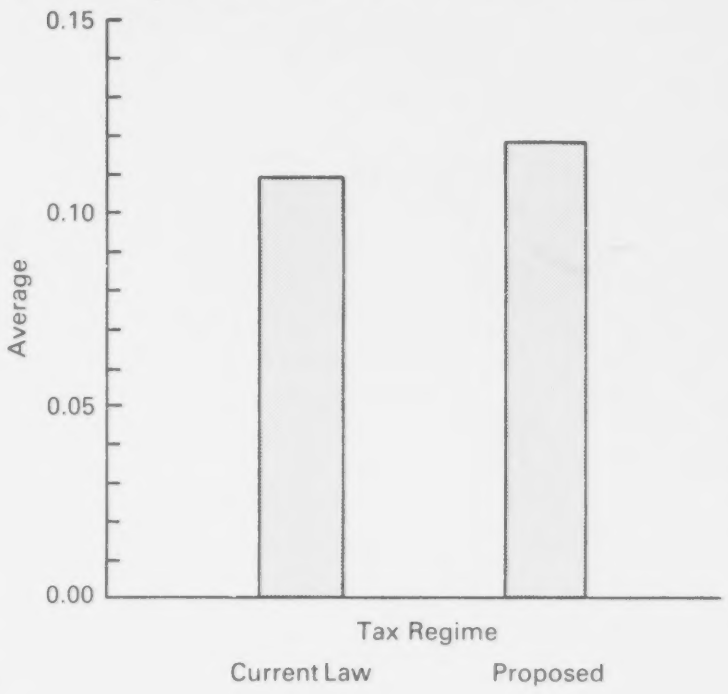
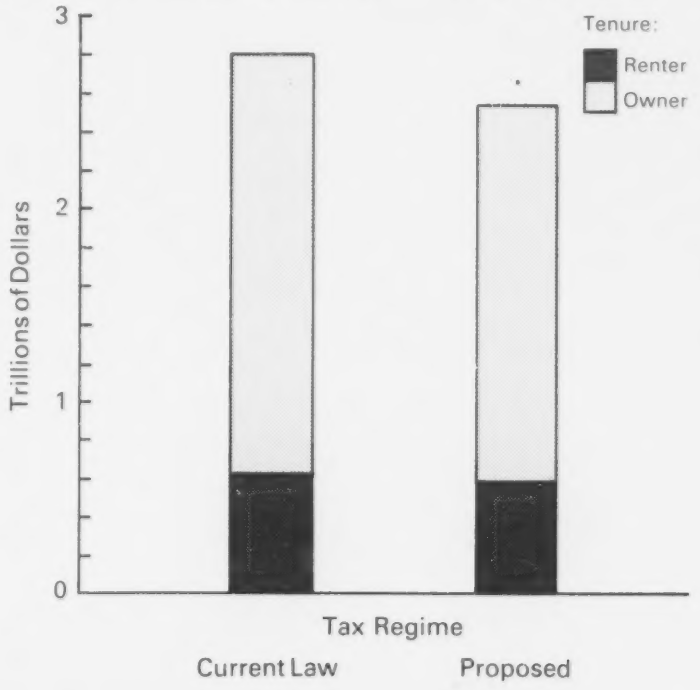



Chart 2

**Aggregate Value of the Housing Stock by Tenure under Current Law vs. the President's Proposal**



the effects of the higher user cost on the aggregate value of the housing stock. The graph can be interpreted in one of two ways. In the short run, the value of the existing stock will decline by about 9.3 percent. In long-run equilibrium, however, the price per unit of the stock is given by its replacement cost (assumed constant in real terms in the model); thus the interpretation of the results as long-run equilibrium results indicates that the size and quality of the housing stock will decline by about 9.3 percent. The owner-occupied stock will decline by 10.4 percent and the renter-occupied stock by 5.2 percent. Housing occupied by high-income owners (income in excess of $100,000) may decline by as much as 15–20 percent.

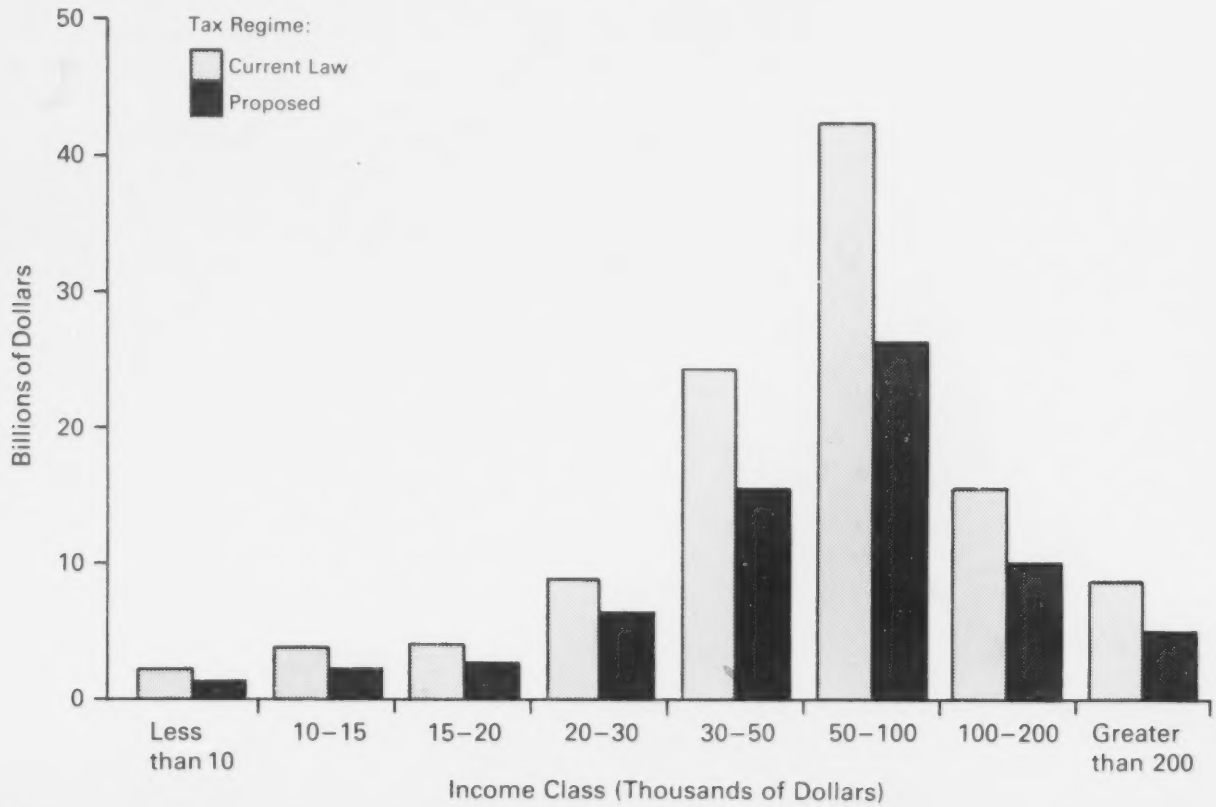
The focus on the average user cost of housing capital normally masks some important differences between the cost of owner-occupied housing versus the cost faced by an investor in rental property. The user cost of rental property is largely fixed by the overall economic conditions and the tax rate of the marginal investor. The major exception to this is the user cost of capital for low-income rental property. This property enjoys an advantage under current law (15-year useful life) that disappears under the proposal. The cost of owner-occupied housing, on the other hand, is dependent upon the marginal tax rate of the household. The higher the rate, the lower the cost of housing capital. With this in mind, it is possible to compute the break-even tax rate and the aggregate homeownership rate under current law and the new proposal. This computation indicates that *the new proposal will have virtually no effect on the aggregate homeownership rate*. Rents will go up, but so will the cost of owner-occupied housing.

The third measure considered is the tax subsidy to the housing sector. This tax subsidy is computed as the difference between the user cost of capital under a neutral tax system and the user cost of capital under current law or the President's proposal. A neutral tax system is one in which the imputed rent (that is value of the housing services the owner-occupant enjoys) earned by homeowners is taxed; depreciation is limited to real economic depreciation, but both owners and landlords can deduct depreciation expenses; all miscellaneous expenses can be deducted by owners and landlords; only real capital gains are taxed. Chart 3 indicates the distribution of the aggregate tax subsidy to housing by income class for current law and the President's proposal. The tax subsidy totals about $110 billion under current law and would be cut to about $69 billion. The proposal would still grant the largest share of the aggregate tax subsidy to middle-income taxpayers.

Chart 4 shows the distribution of the average tax subsidy by income class. Under current law the av-

Chart 3

**Distribution of Tax Subsidy to Housing by Income Class under Current Law vs. the President's Proposal**



erage tax subsidy grows as income increases, reflecting the fact that the size of the subsidy depends upon the marginal tax rate of the household. The President's proposal would have a substantial effect on the distribution of the subsidy. The households in the highest income class, for example, would suffer a 45 percent drop in the size of the tax subsidy it enjoys. Still, the subsidy would be distributed overwhelmingly to middle- and upper-income homeowners; renters would receive less than 18 percent of the total subsidy.

## Conclusions and Caveats

The President's proposal will increase rents by about 7 percent and decrease the value of the aggregate existing housing stock by about 9 percent if it is enacted. The owner-occupied housing stock, especially housing owned by high-income households, is even harder hit. Although this is a substantial change, it is much less severe than that associated with the first Treasury proposal. Furthermore, the President's proposal appears largely neutral with regard to the choice of owning versus renting.

The proposal would reduce some of the imbalances in the current system, but it falls far short of completely equal treatment. High-income households would still receive a substantial tax subsidy to housing, much larger than that enjoyed by other segments of the taxpaying population. However, high-income households are hit hardest by this particular proposal.

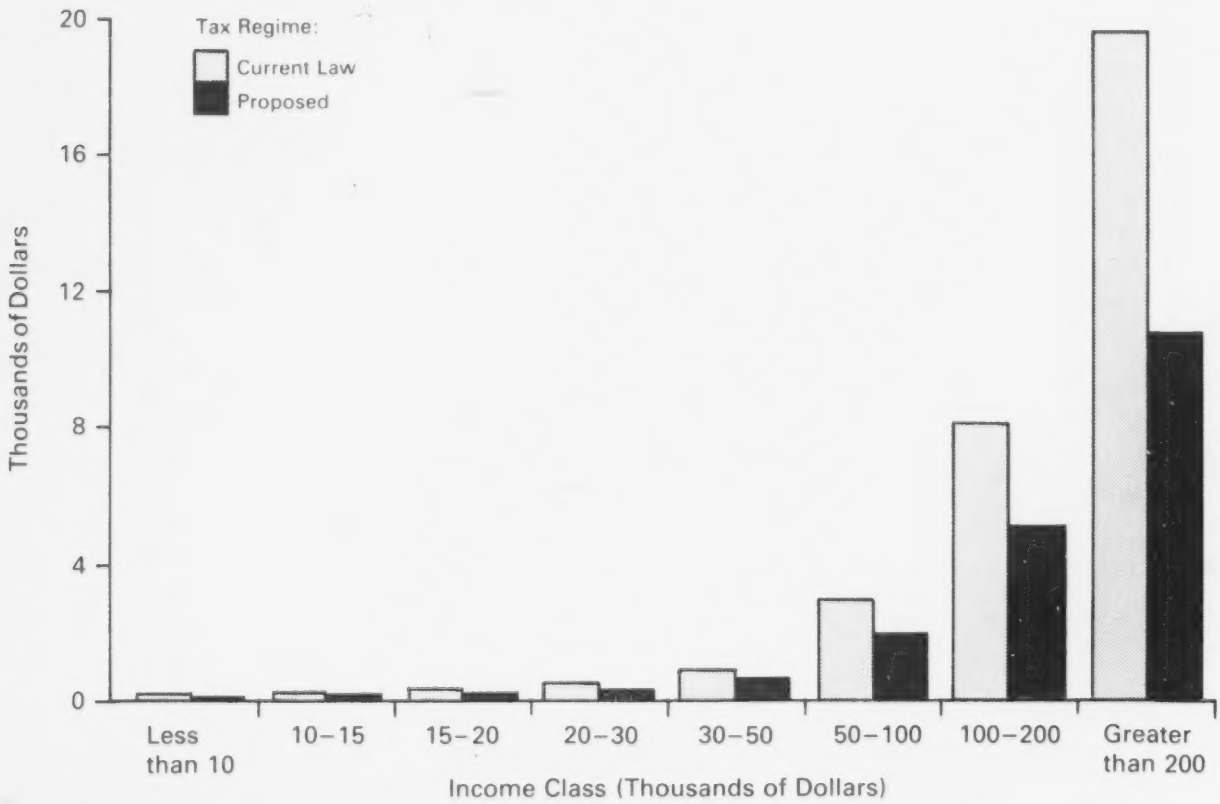
Numerous caveats accompany this analysis; two deserve special mention. The first concerns the proposed at-risk rules and the second concerns the interest deductibility limitations. Many practitioners argue these two provisions will have a serious detrimental effect on the rental housing market. These are difficult provisions to analyze, especially given the fact that the President's proposal does not clearly define all aspects of the new rules. A major example of this ambiguity is the question whether the limitation associated with the at-risk provisions will be indexed for inflation. However, two observations still seem reasonable.

*(1) The Real Estate Limited Partnership Will Suffer*

The cost of housing capital financed by an individual or corporation with equity is not affected by the new at-risk or interest limitation rules in periods of low inflation. Such is not the case for the highly leveraged real estate limited partnership. Even for this type of ownership, though, there are ways to avoid the worst effects of the new at-risk rules. In particular, more rapid turnover, the use of recourse debt, and smaller loan-to-value ratios are steps that

Chart 4

**Average Tax Subsidy to Housing by Income Class under Current Law vs. the President's Proposal**



can be taken to mitigate the potential damage of the new rules. Therefore, it seems quite possible that the new rules will have a greater effect on the form of ownership of rental housing than on the level of investment in rental housing.

*(2) The Burden of the Rules Will Be Greatest during Periods of Rapid Inflation*

The current tax system encourgages debt-financed investment during periods of rapid inflation, because investors are allowed to deduct nominal interest payments at ordinary tax rates and use the debt to generate capital gains income that is taxed at 40 percent of ordinary rates. The new rules attempt to reverse this aspect of the system. This is especially true for the interest limitation rules. The higher the rate of inflation, the more likely it is that interest payments will exceed rental income, excluding accrued capital gains. The at-risk rules would also be anti-debt-financing during inflationary periods if the at-risk limit is not indexed.

The tax law and the tax proposal are very complex. Furthermore, there are many aspects of the proposal that are not yet clear. When these factors are added to the fact that the Congress will certainly modify the proposal in a variety of ways, it becomes obvious that investors in real estate this year are engaged in a risky business. It is no wonder that many investors have elected to "sit on the sidelines" until the uncertainty about tax reform is reduced. Let us all hope that such a time is not too long in coming.


ANNOUNCEMENT

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# Health Care Cost Containment


**Carolyn Woj**


US health care costs have increased at an alarming rate in recent years. 1983 expenditures on health care dwarfed the 1960 bill of $27 billion by a factor of ten. The national health care bill has also been increasing as a percentage of gross national product. Today, health care costs account for over 10 percent of our gross national product (see Table).

The unique characteristics of the health care market contribute to increasing prices. Approximately 95 percent of those who require health care services do not pay their own bill. Instead, third-party payers (government and private insurers) provide retrospective reimbursement. In addition, it is difficult, if not impossible, for the majority of consumers to determine the quality of the health services they receive. Unlike other products for which pre-purchase quality uncertainty exists, the quality is not revealed upon consumption. Another aspect of the industry that is receiving attention is the rapid increase in malpractice claims, awards, and, premiums.

As is evident from these observations, the health care market is quite different from the majority of markets analyzed by economists, and the standard prescriptions of economic analysis are not effective in this case. A free market price system would necessarily involve curtailed health services for the poor; a position the US has declined to accept. Services now paid for by the government would be unaffordable for many people with low incomes. The policy goal is to maintain quality health care available to all, regardless of ability to pay, and to try to stem the rapid inflation in health care prices.

## The Root of the Problem: Incentive Structure

One of the major reasons why health care costs have risen so rapidly in recent years is that providers and consumers have had little incentive to control costs. If two methods of treatment yield identical results, the method that costs less is clearly preferable in terms of utilization of society's scarce resources. The profit motive provides appropriate incentives for cost minimization in most markets, but the health care market has been limited by a variety of constraints, such as mandatory treatment of the indigent.

The incentives facing consumers and providers leads to increasing prices. Consumers, who pass the bill on to third-party payers, have little incentive to question items on the bill or the necessity of certain

forms of treatment. Providers, who are paid retrospectively for work completed, gain more revenues, the more services they provide. As J. Alexander McMahon, President of the American Hospital Association, characterized the incentives facing hospitals,

> It wasn't until 1982, with the passage of the Tax Equity and Fiscal Responsibility Act (TEFRA), that there was any real economic incentive for hospitals to control costs. Until then, if a hospital saved one dollar in costs, it lost one dollar in revenue. TEFRA changed that by permitting the hospital to keep fifty cents out of every dollar it saved. All of a sudden, the real heroes were those who saved money.

In addition to the incentives created by third-party payment, the threat of malpractice suits has led to an escalation in health care costs. The rate of malpractice suits and the settlements reached have been increasing. In 1983, 16 percent of all doctors faced malpractice claims, a 300 percent increase since 1975. Ten years ago, a million dollar settlement was quite extraordinary. Today, large settlements are much more commonplace. "We're seeing one million dollar verdicts or settlements every week now," said Norman Schindler, one medical liability claims officer. The increase in claims and awards has received attention in Congress. The Alternative Medical Liability Act was introduced last year and is expected to be reintroduced in the 99th Congress. The bill, applying only to individuals in federally funded health care programs, stipulates that health care providers make a settlement offer to injured individuals within 180 days for economic loss. Individuals are not allowed to sue for noneconomic losses once the offer is made.

Other factors that have led to increases in the cost of medical care have been increases in the general level of prices, tax breaks for employee health benefits, and advances in medical technology. As we have seen, the incentives faced by providers and users of health care resulted in a spiralling of costs. Neither party had a direct incentive to attempt to control the problem. The third-party payers, however, did have a decided interest.

Table

**Health Care Costs in the US**

| Year | Total (billions) | % GNP |
|---|---|---|
| 1965 | 41.7 | 6.1 |
| 1970 | 74.7 | 7.5 |
| 1971 | 77.2 | 7.7 |
| 1972 | 86.4 | 7.9 |
| 1973 | 94.2 | 7.8 |
| 1974 | 116.4 | 8.1 |
| 1975 | 132.7 | 8.6 |
| 1976 | 149.7 | 8.7 |
| 1977 | 170.0 | 8.8 |
| 1978 | 189.3 | 8.8 |
| 1979 | 215.0 | 8.9 |
| 1980 | 249.0 | 9.5 |
| 1981 | 286.6 | 9.8 |
| 1982 | 322.4 | 10.5 |
| 1983 | — | 10.8 |

## Federal and Corporate Response

The major payers of health care bills are the federal and state governments, private insurers, and employers with health care benefit packages. In recent years, a number of new and innovative methods have been devised by these parties in an attempt to control their ever-increasing health care bill.

The federal government has made a major change in its reimbursement practices. In September of 1983 a diagnosis-related-group (DRG) method of payment was enacted to institute a prospective reimbursement system. To date, 467 DRG's have been identified. Under this approach, the hospital receives a certain target amount for each Medicare or Medicaid patient based on the DRG to which the individual has been assigned. If a hospital spends less than the target amount, it keeps the savings. This move has created an incentive for hospitals to be more cost conscious. So far, the results of this program appear promising. The average length of a Medicare hospital stay has decreased, and the rate of change in Medicare admissions remained constant, after rising more than 4 percent annually for years.

Critics of the DRG program fear that the government's plan may decrease its own outlays at the expense of the other payers. The phenomenon whereby hospitals pass on costs not covered by the federal government to private insurers and other payers is known as cost-shifting. According to Joseph Califano Jr., former secretary of the Department of Health Education and Welfare,

> Controlling medical costs has become the great American shell game. Congress puts a cap on Medicare payments for 467 medical procedures, and hospitals just pass the costs off to the states. States put their own caps on Medicaid hospital payments, and hospitals just move the cost to private insurers and Blue Cross and Blue Shield. Congress caps payments to physicians in hospitals and doctors move the patient outside the hospital to their offices or clinics where there are no caps.

The corporate response to increasing health care costs has taken a number of different forms, ranging from the formation of health care coalitions to a greater reliance on co-payments and deductables. The Chrysler Corporation conducted a study of their health care expenses and found an alarming amount of unnecessary care. "Their study found that two-thirds of the hospitalizations and 2,264 out of 2,677 of the total hospital days for lower back problems were inappropriate."

One means of controlling costs is to give the consumer an incentive to economize on care. Co-payments and deductables give consumers an incentive to shop around and avoid unnecessary care. A Rand Corporation study indicated that "individuals in cost sharing plans had fewer office visits and lower hospitalization rates," thus reducing health care costs. Caution should be used, however, in applying these cost-saving measures to preventive medicine. Short-term cost decreases could result in greater costs in the future if individuals fail to use preventive care.

Health care coalitions are another method whereby employers hope to trim their health care bill. Today there are over 130 coalitions in the United States. These coalitions consist of a group of employers that pool health care data in an effort to identify cost-efficient providers. As a group, they are also more effective in bargaining with the providers.

Other new developments are the emergence of Health Maintenance Organizations (HMOs) and Preferred Provider Organizations (PPOs), methods of health care provision that offer incentives to limit health care costs.

PPOs offer fixed rates for providing health care services to a certain number of individuals over a given time period. Since they give a fixed amount for each patient, a strict review of medical and surgical procedures ensure that cheaper forms of care are obtained.

HMOs sell a comprehensive medical package for a fixed fee per person. HMOs act as both provider and insurer, and as such they have an incentive to economize on costly hospitalization. As of this date, over 15 million individuals, or over 7 percent of the health care insurance population, were enrolled in HMOs. As of 1983 the number of HMOs in the United States totalled 280. Studies indicate that this type of health care provision results in lower health care costs without jeopardizing the quality of care.

## The States' Response

The states share with the federal government the cost of providing health care services to the poor under the Medicaid program. In recent years, the states' health care bill has been steadily increasing. In an effort to stem these increases, some states have instituted copayments. Half of the states now require medicaid patients to pay a portion of their health bill. Approximately one-half of the states also utilize HMOs for their medicaid recipients. In addition, some states have a flat fee prospective payment program similar to the federal DRG program.

New Jersey instituted a pilot DRG program, which served as a model for the federal DRG system. Cost shifting is not possible under the New Jersey system since all payers pay the same DRG rate.

DRG payments rates are based on a mix of the hospital's average cost and the statewide average cost of treating a patient in a particular DRG. The rates are set based on costs incurred in a base period and include a markup to cover losses incurred in treatment of the indigent. The system involved the development of better data management techniques, which should be useful in controlling costs. Between 1980 and 1983, the New Jersey DRG system saved Medicare approximately $200 million.

The DRG system, although effective in the short run, may not be effective in the long run in controlling costs. One of the problems mentioned with the system is DRG Creep. This phenomenon has been defined as "a deliberate and systematic shift in a hospital's reported case mix in order to improve reimbursement." In borderline cases, doctors may choose to place the patient in the more expensive DRG catagory in order to obtain more revenues. This is not a likely problem, however, since future rates are set based in part on the hospital's cost of caring for a patient in a certain DRG catagory. If hospitals place patients requiring less care in the more costly DRG to receive more revenue now, their cost of care appears less expensive, and they receive a lesser payment in future years.

Another problem with the DRG system involves the incentives for long-run cost control. It is true that in the short run the hospital gains more if it is cost-efficient; but this is not necessarily the case in the long run. Since future rates are set on costs incurred in a base year, the more efficient you are in the base year, the less your reimbursement in future years. In fact, one-third of the hospitals involved in the New Jersey DRG system incurred losses in 1982, the base year for 1984 rates. Thus, while the DRG system may provide a short-term incentive to decrease health care costs, it is not apparent that this method will be effective in the long run.

A number of steps have also been taken at the state level in Illinois to limit health care costs. Senate Bill 495 mandated the creation of an 11-member health care cost containment council. The purpose of the council is to collect data on hospital costs and finances and make recommendations for measures to limit health care cost increases by March 1986. Under Senate Bill 495, hospitals are required to supply information to the council on billing and costs. This data will be useful in measuring the amount of cost-shifting that occurs and the cost effectiveness of the various providers.

## Conclusion

Health care costs have risen rapidly in recent years. The unique characteristics of this market gave the providers and consumers little incentive to be cost effective. Third-party payers have recently undertaken a number of innovative measures in an effort to limit health care cost increases. HMOs, PPOs, and DRGs are a few of the new buzz words on the health care scene. Whether these methods will be effective in the long run in controlling cost increases in the complex health care market is uncertain. It *is* certain, however, that some steps need to be taken. The old incentive structure led to spiralling cost increases. The problem is indeed complex, and a simple panacea is unrealistic.

# Lights, Camera, Illinois

**Carolyn Woj**

## Coming Attractions

Hollywood has lost some of its glamour recently. Filmmakers, eager to lower costs, are often moving their productions outside of California to more hospitable locations. Illinois, North Carolina, Massachusetts, Texas, and New York are among a number of states offering various incentive packages to producers in order to encourage filming in their locale. Last year nearly one-half of all the mainstream feature films shot in the United States were shot totally outside of California.

## Baiting the Hook

State film offices are aggresively selling their states as prime filming locations. The incentives offered to encourage production in an area range from free helicopter tours for writers to lower taxes. In Massachusetts, the Middlesex County Commissioners allowed producers use of a courthouse for six months free of charge. In New York City, the country's second largest film center, free police assistance and free permits for filming in public places are available within 24 hours.

In addition to the amenities mentioned above, a lower cost of production is luring the film industry to locations outside Hollywood. A sign in front of the movie studio of Earl Owensby in North Carolina proclaims "The most efficient motion picture complex in the world." Mr. Owensby states, "You get twice as much production value for your money as you do in Los Angeles, and we even own our own motel." Dino De Laurentiis, who operates a studio in North Carolina, is also quick to note the cost advantages of production outside of California. "In Hollywood you pay a working guy $2,600 a week. In North Carolina, you pay $400." In addition, his daily labor costs for extras average approximately one-third of the California rate of $91 a day.

## Cashing In

The benefits of film production to a state include money spent filming the production, the additional spending generated by the base amount spent filming, and the tourism dollars generated by favorable publicity. In the past year, movie and television productions spent $350 to $400 million in New York City, $46 million in Massachusetts, $39 million in Texas, and $18.2 million in Illinois. Over 100 productions have been filmed in Illinois in the past 10 years. These productions have resulted in nearly $90 million being spent in the state; generating jobs for over 55,000 workers.

The initial amount spent on production in a state generates additional economic activity. For example, local workers employed for the movie may spend their income on goods and services produced in Illinois, further boosting the local economy. The Illinois Film Office estimates that every dollar spent on film production in Illinois generates three and one-half more dollars in additional spending. Since 1976, approximately $300 million of additional spending has been generated in Illinois in this manner.

Favorable publicity through movies may also make the state more attractive to tourists. "Our tourism was up 24 percent in 1984, partly because *Saint Elsewhere* and *Cheers* add to the state's visibility and charm and make Massachusetts seem an attractive place to visit," said Governor Dukakis. Conversely, films portraying a state as an unattractive area, damage the state's ability to encourage tourism. Even if a film may generate spending in Illinois, consideration must be given to the image of the state portrayed in the film and its likely impact on the Illinois economy.

## The Curtain

California is no longer the sole host to the movie industry. States are vigorously competing for a piece of the action. In Illinois alone, nearly $90 million has been spent on motion picture and television production since 1976. Lower costs and special incentives are attracting the movie industry away from Hollywood. As Sidney Sheinberg, President of MCA Inc. states, "Hollywood doesn't have a God-given monopoly on production. There are no walls around the state. This is a mobile industry. It's going to go where it's treated well."

Table

**Motion Picture and TV Production in Illinois**

| | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | Total |
|---|---|---|---|---|---|---|---|---|---|
| Productions worked on | 9 | 18 | 44 | 45 | 67 | 75 | 82 | 126 | 466 |
| Shot in whole or part in Illinois | 7 | 6 | 8 | 13 | 19 | 15 | 22 | 26 | 116 |
| Cash spent in state for motion picture and TV production (thousands) | $870 | $5,868 | $4,773 | $13,673 | $16,591 | $12,952 | $15,509 | $18,238 | $88,474 |
| Estimated total local people hired | 1,220 | 2,195 | 6,013 | 15,865 | 9,707 | 5,602 | 6,719 | 8,494 | 55,815 |

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## ILLINOIS BUSINESS INDEXES

| | Percent Change May 1984-May 1985 | May 1985 | April 1985 | March 1985 | Feb 1985 | May 1984 | April 1984 |
|---|---|---|---|---|---|---|---|
| Coincident Indicator (1969=100) | 13.65% | 123.96 | 122.29 | 113.67 | 112.16 | 109.07 | 109.35 |
| Employment-manufacturing (in thousands)[e] | -3.68% | 951.8 | 953.3 | 960.40 | 964.30 | 988.20 | 985.20 |
| Average weekly hours-manufacturing[e] | -1.96% | 40.1 | 40.3 | 40.30 | 39.60 | 40.90 | 41.40 |
| Weekly earnings-manufacturing[e] | 0.88% | $413.83 | $416.30 | $414.69 | $407.09 | $410.23 | $414.83 |
| Help wanted advertising-Chicago (1969=100)[a] | 4.35% | 96 | 94 | 98 | 100 | 92 | 90 |
| Help wanted advertising-St. Louis (1969=100)[a] | 12.28% | 64 | 64 | 74 | 72 | 57 | 57 |
| Retail Sales (in millions)[b] | 8.19% | $5,111 | $5,235 | $5,062 | $4,312 | $4,724 | $4,854 |
| Coal production (in thousands) | 0.00% | 6,147 | 5,196 | 5,253 | 5,098 | 6,147 | 5,657 |
| Petroleum products (in thousands)[e] | 1.25% | 2,430 | 2,340 | 2,260 | 2,040 | 2,400 | 2,310 |
| Vendor performance | -37.14% | 44.0% | 44.0% | 46.0% | 48.0% | 70.0% | 71.0% |
| Building permits (in thousands) | | | | | | | |
| Residential housing units | 27.05% | 4.716 | 3.723 | 2.421 | 1.282 | 3.712 | 2.914 |
| Value of Residential housing | 15.36% | $253,833 | $212,888 | $146,420 | $70,824 | $220,037 | $169,758 |
| Value of nonresidential construction | | | | | | | |
| Industrial buildings | 61.85% | $34,445 | $20,462 | $23,761 | $4,367 | $21,282 | $10,237 |
| Office, banks, and professional buildings | -26.42% | $31,949 | $63,386 | $65,906 | $44,259 | $43,423 | $31,563 |
| Stores and other mercantile buildings | 72.09% | $32,014 | $29,503 | $15,586 | $12,466 | $18,603 | $16,975 |
| Other | 8.32% | $6,264 | $2,427 | $4,384 | $1,318 | $5,783 | $4,089 |
| Consumer price index (December 1977=100) | | | | | | | |
| North Central US[c] | 3.29% | - | 172.8 | - | 171.2 | - | 167.3 |
| North Central/population more than 1,250,000[c] | 3.53% | - | 175.9 | - | 174.3 | - | 169.9 |
| North Central/population 385,000 to 1,250,000[c] | 2.94% | - | 171.7 | - | 169.7 | - | 166.8 |
| North Central/population 75,000 to 385,000[c] | 3.18% | - | 168.6 | - | 166.7 | - | 163.4 |
| North Central/population less than 750,000[c] | 2.80% | - | 169.1 | - | 168.2 | - | 164.5 |
| Chicago (1967=100) | 4.20% | 319.8 | 319.1 | 317.4 | 316.7 | 306.9 | 306.7 |
| St. Louis (1967=100) | 3.44% | 315.9 | - | 314.3 | - | 305.4 | - |
| | | 1984:IV | 1984:III | 1984:II | 1984:I | 1983:IV | 1983:III |
| Personal income (in millions)[d,e] | 10.07% | $162,200 | $160,180 | $156,710 | $153,010 | $147,360 | $144,000 |
| Per capita personal income[d,e] | 9.46% | $14,024 | $13,871 | $13,593 | $13,293 | $12,812 | $12,530 |

[a]The Conference Board, *Help Wanted Advertising*, May 1985. [b]Latest month projected by BEBR. [c]Percent change between April 1984 and April 1985. [d]Percent change between 1983:IV and 1984:IV.